

MARINE RECORD

ESTABLISHED 1878.

VOL. XXV, No. 31.

CLEVELAND -- JULY 31, 1902 -- CHICAGO.

\$2.00 Per Year. Single Copy 10c.

LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and to improve the character of the service rendered to the public.

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THE WORLD'S MERCHANT MARINE.

Lloyd's Register of British and Foreign Shipping for the year 1902-3 shows that the tonnage of British and foreign steamers and sailing ships of over 100 tons each have increased during the past year from 29,091 vessels of 30,600,510 tons gross, to 29,628, of 32,437,763 tons gross. The following table shows the growth of the tonnage of the different nations:

	1902	1901		
	Steam rs tons gross	Sail. Ships ton-net	Steamers tons gross	Sail. Ships tons net
British	13,652,455	1,894,442	12,739,180	1,969,026
United States	1,954,168	1,382,988	1,704,159	1,373,188
Argentine	67,341	28,328	58,520	26,770
Austro-Hung'n	529,319	26,784	462,366	24,436
Belgian	170,577	624	164,791	244
Brazilian	134,568	23,556	138,347	24,920
Chilian	72,149	41,019	62,376	37,588
Chinese	59,731	573	29,176	573
Colombian	877	934	877	934
Cuban	35,752	1,875	34,958	1,907
Danish	440,010	98,483	410,468	97,726
Dutch	555,047	57,873	515,530	62,579
French	1,104,893	415,029	1,068,036	338,847
German	2,636,338	502,230	2,417,410	488,372
Greek	287,986	55,171	231,541	60,519
Haytian	1,750		1,750	244
Italian	691,841	467,241	657,981	459,557
Japanese	555,230	135,351	524,125	120,539
Mexican	15,347	3,303	16,190	3,427
Montenegrin	1,857	4,238	1,857	3,790
Norwegian	866,754	766,003	810,335	816,885
Peruvian	4,992	9,704	4,869	9,704
Philippine I'ds	38,284	8,361	32,650	8,264
Portuguese	56,619	49,330	56,036	51,694
Roumanian	17,419	634	17,243	874
Russian	556,102	244,232	533,029	256,224
Sarawak	2,270		818	
Siamese	1,829	294	982	294
Spanish	736,209	48,364	734,557	51,798
Swedish	464,705	225,468	451,020	225,199
Turkish	98,044	61,653	93,233	54,076
Uruguayan	23,961	16,684	10,468	10,819
Venezuelan	4,015	1,060	4,015	1,185
Zanzibar	2,808		2,808	
Other Countries	18,740	5,947	17,185	9,425

Of the steamers of from 5,000 to 6,999 tons gross in existence, 347 are owned in the United Kingdom against 302 a year ago, 30 in the United States against 27, 21 in France against 15, and 52 in Germany against 45; of vessels of from 7,000 to 9,999 tons, 109 are owned in Great Britain, 3 in the United States, 4 in France, and 12 in Germany; and vessels of over 10,000 tons, 40 are owned in the United Kingdom, 6 in the United States, 2 in France, and 26 in Germany.

BONDING STEAMBOAT LINES.

The bonding of new steamboat lines has proved very successful. The securities have been well thought of and are in good demand. The Detroit Trust Co. last week arranged for the issue of \$110,000 5 per cent. first mortgage bonds for the Adams Transportation Co., Detroit, secured by a mortgage on the steel steamer Thomas Adams, which cost \$225,000 to build. As a further security the steamer is insured for \$225,000, the loss payable to the Detroit Trust Co., as trustee. The bonds are payable \$11,000 a year from Jan. 1, 1903.

The other steamboat bond issues so far, trusted by the Detroit Trust Co. and now on the tapis, are:

Acme Transit Co.—First mortgage 5s, \$130,000, secured by mortgage on steel steamer Jenks.

Keller Transit Co.—First mortgage 5s, \$120,000, secured by a mortgage on the steel steamer Harold B. Nye.

Erie Steamship Co.—First mortgage 5s, \$100,000, secured by a mortgage on the steel steamer Panay.

Etna Steamship Co.—First mortgage 5s, \$100,000, secured by a mortgage on the steel steamship Moses Taylor.

Northwestern Steamship Co.—First mortgage 5s, \$500,000, secured by mortgages on the steel steamers Northwestern, Northman and Northtown.

UNITED STATES EXPORTS.

The frequently asked question, "What becomes of our exports of manufactures?" is now definitely answered by the Treasury Bureau of Statistics. While it has been practicable to show the countries to which any given article is sent in any given year, the figures of the Bureau have not formerly been so adjusted as to render it practicable to determine what share of the total exports of manufactures was sent to a given country or grand division of the world; or, in other words, the location of the principal markets for American manufactures. These facts are now shown by a series of tables compiled by the Bureau. They show that during the year 1902 52 per cent. of the manufactures exported went to Europe, 23 per cent. to North America, 6.6 per cent. to South America, 8.2 per cent. to Asia, 7 per cent. to Oceania, and a little less than 3 per cent. to Africa. The total value of manufactures exported to Europe was \$215,000,000; to North America, other than the United States, \$96,000,000; to South America, \$27,000,000; to Asia, \$33,700,000; to Oceania, \$29,000,000, and to Africa, \$10,500,000.

In conjunction with the tables showing the distribution of manufactures by countries and grand divisions, the Bureau has prepared a statement which shows for the first time the exportation of manufactures in each year from 1790 to the present time. In 1790 the total amounted to a little over \$1,000,000, and formed 6 per cent. of the total exports: in the decade from 1791 to 1800 exports of manufactures averaged about \$2,000,000 per annum; in the decades ending with 1810 and 1820, respectively, they averaged about \$3,000,000 per annum and formed about 7 per cent. of the total exports; in the decade 1821-30 they averaged about \$6,000,000, and never reached as much as \$10,000,000 prior to 1840. By 1850 the exports of manufactures had reached \$17,500,000, and in 1860 for the first time touched the \$40,000,000 mark, but did not cross the \$50,000,000 line until 1870, when they amounted to \$68,279,764. In 1877 they for the first time crossed the \$100,000,000 line, the total for that year being \$122,577,652. In 1896 they crossed the \$200,000,000 line, the total for that year being \$228,571,178; in 1899 the total was \$339,592,146, and since 1900 the exportation of manufactures has constantly exceeded \$400,000,000 per annum.

RULES OF ST. CLAIR FLATS CANAL.

Vessel masters who hereafter ignore the rules in regard to vessels passing in the St. Clair Flats canal are going to be prosecuted if they do not cease passing vessels going in the same direction while in the canal.

Several cases have been reported of late, and the announcement is made that whenever a captain attempts to pass another boat going in the same direction the full penalty of \$500 fine would be imposed upon him. A term of six months in prison is also likely to be added.

The canal custodian has warned several masters, but apparently to no avail, and the government is now going to take a hand. Among other things the law especially forbids any vessel approaching closer than 500 feet to any other vessel which it is overtaking, and forbids the overtaking boat from passing the boat ahead of it until both boats are entirely outside of the canal and its approaches.

The law also provides that a speed greater than eight miles per hour shall not be attained within the canal, and also requires all captains to obey the directions, orders and instructions of the canal custodian while they are inside of the canal. A letter to the district supervising inspector of steamboats, Capt. J. W. Westcott, asking that all steamers be notified of infraction of government rules, says: "This office desires if possible to secure a full compliance of the laws by the amicable assistance of all interested parties rather than by prosecution in court, which latter method will be resorted to, however, if other methods fail."

Capt. John Pitritte, formerly one of the best known captains on the lakes, died at Toronto, last week, aged eighty years. About twenty-five years ago Capt. Pitritte was appointed collector on the Welland canal at Port Dalhousie, which position he held until about four years ago, when he was superannuated.

WIRELESS TELEGRAPHY IN THE NAVY.

A board on wireless telegraphy will shortly be appointed by the Navy Department for the purpose of deciding upon the system to be installed on the fighting ships of the American navy, and to work at plans for the education of the men who will operate the apparatus on board the vessels. The board will probably consist of five officers of high standing.

Capt. Knox, now on duty at the Naval War College, Newport, R. I., is talked of as president of the board, while Lieut. Hudgins, who has been abroad several months studying different wireless systems, will undoubtedly be one of the members.

Extensive experiments will be made, and after a system of wireless telegraphy is selected, the practical work of installing it upon the ships and training the men to operate it will begin.

The department has already taken time by the forelock, and a number of enlisted men have been selected for future detail in connection with the operation of this system of communication.

CHICAGO.

A spurt of wheat shipments to Georgian Bay gave four cargoes to waiting boats at Chicago. The rate was $1\frac{1}{8}$ cents.

The line boats gathered in some corn but no outside business was done in the grain trade. Rates are nominally unchanged at 1 cent to Buffalo.

The old steamer Edward Pease seems to be getting into a good deal of trouble recently. Her latest action was to demolish about 100 feet of the city wharf at Manistee and damage her own hull pretty badly.

The steamer Fred Pabst, which sank the steamer Johnson last week by collision on Lake Huron, has not a scratch to show as a result of the accident. Capt. Sullivan declined to make any statement regarding the cause of the collision.

The steel cargo steamer Panay, 3,811 tons gross and 2,778 tons net, built at the South Chicago yards of the Chicago Ship Building Co., and hailing from Cleveland has been granted official numbers this week by the Bureau of Navigation, Treasury Department, Washington, D. C.

The old Bateman, McDougall & Palmer ship yard is now known as the plant of the Empire Ship Building Co. The offices at Genesee and Rock streets are now occupied and the work of improvements at the yards is being carried steadily forward.

Major J. G. Warren, Corps of Engineers, U. S. A., submits the following estimates for the Milwaukee, Wis., district: Sturgeon Bay and Lake Michigan ship canal, Wisconsin, \$178,000; Waukegan harbor, Illinois, \$245,000; Fox river, Wis., \$100,000.

Capt. Davis Morris, one of the oldest and best known skippers on Lake Michigan, is dead at the age of 63 years, of Bright's disease. He held papers as captain more than 30 years. He leaves a widow, a grown up son, and a daughter. For the last few years he had been captain of the steamer Kalamazoo, of the Dunkley-Williams Line, running to Chicago.

Plans are being considered for a modern steel railroad car ferry with a capacity of twenty-eight or thirty cars to run between Milwaukee and Grand Haven. Capt. J. H. Crosby, of the Crosby Transportation Co., is interested in the line and stated that while the deal has not yet been closed plans might later be perfected which would insure the operation of the line next year.

The last cargo of lumber was shipped on the schooner Jennie Weaver from the yard of the Kirby-Carpenter Lumber Co. which has been doing business in Menominee for the last sixty years. It was 39,000 feet and was taken to Sheboygan. There are now only a few old planks of torn down tramways and roads remaining in the yard of this company, once the largest lumber concern in America.

The steamer Puritan in coming across from Holland, on Wednesday, collided with an unknown schooner forty-five miles from Chicago. It was a glancing blow in which the schooner's jibboom and her headgear was carried away. The Puritan stopped long enough to be told by the captain of the schooner that he was in no danger of sinking. Capt. Boswell said that no lights were displayed on the schooner, hence the collision.

It is understood that Chicago parties who have purchased the shipyard of Burger & Burger at Manitowoc are in no way connected with the Shipowners' Drydock Co., of Chicago, or any other shipbuilding organization already in operation. It is said that they have abundance of capital and that they will fit the Manitowoc works for the building of steel vessels on a moderate scale. Names of officials of the new company are withheld for the present on account of their connection with other works.

The steamer North Land, of the Northern Steamship Co., refused to take any chances on her ability to keep ahead of the steamer Virginia, on her last run down from Milwaukee, and lay back at the latter port until 12 minutes after the Virginia's scheduled time of leaving. This difference was widened to forty minutes by the time the North Land reached the outer breakwater at this port. The company folders still bear the inscription "Speed, twenty-two miles an hour." The North Land is 386 feet long, with 44 feet beam, and the Virginia 269 feet long, with 38 feet beam.

Coal dealers in the west and southwest are beginning to get hungry for hard coal, and can't understand that with 150,000 miners on strike in Pennsylvania, no coal is being mined and stocks are depleted, according to the statistics compiled in the office of the Black Diamond, there were no receipts of anthracite coal by lake at Chicago during the first ten days of July, and but 691 tons by rail. The falling off in the receipts so far this season, as compared with last year, are by lake over 113,000 tons and by rail about 294,000 tons. The shipments of anthracite from Chicago were 450 tons only, as compared with 7,500 tons last season, and for the year there is a deficiency of over 120,000 tons, owing to the existing strike.

It now appears to be up to the drainage board to provide the means of a greater depth of water over the Washington street tunnel, more commonly known among marine men as "McCarthy's Reef." The city has been ready for some time to cut off the piling which, investigation has disclosed, projects over the surface of the tunnel's top,

depriving the stream at that point of about two feet of its depth. City Diver Donovan has reported that the work of sawing off the piling cannot be done unless the current is shut off by the drainage authorities. The current passing through the narrow channel of the bridge draw at Washington street is very swift, and even the examination was made with some difficulty.

A steamer running through a river of fire was the spectacle witnessed in the stock yards branch of the river on Saturday. The steamer T. W. Palmer owes her present safety to the fact that she is of composite construction, steel hull and wooden upper works. Sparks from the tug Tom Brown set the gas house refuse on fire near the Armour & Co., glue works, and the flames spread over the entire surface of the river. Fortunately the captain of the Palmer saw the fire start and signaled for steam. Despite this quick action, the flames enveloped the steamer aft and drove the crew forward. The fire followed quickly and was not outrun by the steamer until the south branch was reached. Slight blazes on the wood work were speedily extinguished.

DETROIT.

The passenger steamer Eastern States, of the Detroit & Buffalo Line, is again in service after an idleness of three weeks caused by the breaking of her high pressure cylinder.

The engine of the Kittie Forbes, which was burned at the Flats, is at the Great Lakes Engineering Works to be repaired. It is said that it will be put in a new boat to be built by the Davidson yard at Bay City.

The Detroit & Cleveland Line's management have been experimenting with wireless telegraphy for some time and will equip their vessels just as soon as they can be assured that the service would be practical.

General Manager E. T. Evans, of the Anchor Line, visited Detroit last Friday to inspect the new steamers building at Wyandotte for that line. The passenger steamer will be named Tionesta and the freighter Muncy.

The steel steamer A. E. Stewart, built at the West Bay City yards of the American Ship Building Co., and engined and equipped here by the Detroit Ship Building Co. is now on her maiden trip to Lake Superior for a cargo of iron ore.

It is alleged that all the dredging done in the vicinity of Cleveland is under the direction of a dredging pool. This state of affairs is said to be the reason of the United States Engineers' efforts to secure an appropriation for a government dredge.

Major W. H. Bixby, Corps of Engineers, U. S. A., reports as follows upon the improvements connecting the Great Lakes: St. Mary's river at the falls, Michigan \$682,000; Hay Lake and Neebish Channels, St. Mary's river, \$1,000,000; to complete the project, \$4,000,000; Detroit river, Michigan, \$500,000; to complete the project, \$1,250,000.

A new chart in colors, of Charlotte Harbor, New York, has just been issued and is now on sale at the U. S. Lake Survey Office, 33 Campau Building, at 15 cents per copy.

A revision in colors, of coast chart No. 1, Lake Ontario, has just been issued and is now on sale at the U. S. Lake Survey Office, 33 Campau Building, at 18 cents per copy.

Capt. Mart Swain, for years master of the wrecker Favorite, one of the best known vesselmen on the lakes, and a wrecker of whom it is said he never gave up a job, is going to retire. He has made a competency in the wrecking business, and now on account of failing health will retire. It is said that Capt. Harrow, of Port Huron, will be his successor.

Major W. H. Bixby, Corps of Engineers, U. S. A., reports to Washington as follows from Detroit, Mich., upon the improvements connecting the Great Lakes: St. Mary's river at falls, Michigan, \$682,000; Hay Lake and Neebish channels, St. Mary's river, \$1,000,000, to complete the project, \$4,000,000; Detroit river, Michigan, \$500,000; to complete the project, \$1,250,000.

The following meteorological observations are furnished by the office of the U. S. Weather Bureau, Detroit, Mich., for the week ending July 29th, 1902: Prevailing wind directions for the week, southwest; highest velocity, 40 miles from the northwest on the 27th; mean temperature for the week, 73 degrees; highest temperature, 87 degrees on the 26th; lowest, 61 degrees on the 24th.

Judge Reaman, in the United States court, Milwaukee, held that a transportation company is liable for throwing overboard a cargo of lumber or other material in a storm, even though it be to save the boat and the lives of the crew. The case in point was the suit of the South Arm Lumber Co. against the owners of the Wolverine, from which vessel a cargo of shingles was jettisoned.

Negotiations are pending between F. H. Clergue, of Sault Ste. Marie, and the Detroit, Belle Isle and Windsor Ferry Co., for the purchase of one of its steamers to be put into the ferry service between the American and Canadian Saults. The boat under consideration has been able to plow through two feet of ice. This feature is necessary in a steamer for use during the winter on the Sault river.



BUFFALO.

Capt. Sam Gould is now located here as shipping master for the Lake Carriers' Association.

Mr. J. C. Gilchrist, of Cleveland, is now owner of the Buffalo Ship Chandlery Co., Main street. Wm. Smith manager.

Howard H. Baker and Co., ship chandlery, have just added a fifty horse power gas engine to their plant and report enjoying a favorable share of marine patronage.

The surveys necessary for the estimates and specifications in connection with the plan for the straightening of Buffalo river have been completed by the Bureau of Engineering.

A. B. MacKay, William McGee and W. G. Walton, of Hamilton, Ont., have returned from Europe, where they ordered several cargo boats for the Ontario Steamship Co. The steamers will run between Montreal and Ft. William.

The United States marshals are after the tugs here in great shape for steaming at too high a rate of speed in the harbor. Capt. Murray Mainer, of the tug Miles, and Capt. Samuel Gowan, of the tug George E. Latimer, were the latest arrests for a violation of the harbor rules and regulations.

Charges have been filed in the custom house against the tug Acme, of the Great Lakes Towing Co., for carrying passengers without a license. The charges were filed by Captain Charles Smith and others. It is claimed that the Acme took on board fourteen persons from the steamer Lackawanna and carried them a mile. The law makes the boat liable to a fine of \$500 with \$10 extra for each passenger carried. Customs Collector Henry W. Brendel believes the violation to be merely of a technical nature.

George R. Tripp, master of the Great Lakes tug Alpha, against whom charges were filed because he carried passengers on his boat in violation of the boat's license, was found guilty, and his license was suspended for thirty days. Capt. Murray Maines, of the independent tug Paddy Miles, charged with steaming at too high a rate of speed in Buffalo harbor, and violating a city ordinance, was held by United States Commissioner Jewett, to the federal grand jury. He was released on \$250 bail, and this will likely be the last of it, as the federal grand jury can have but little to say regarding a minor infraction of a city ordinance.

The steamer Eastern States, which was laid up for three weeks because of an accident to her high pressure cylinder, arrived here on Wednesday morning on schedule time. The vessel brought down a large number of Detroiters. The trip was uneventful, the high pressure cylinder working as if it never had been injured. The work of building up the broken part without making a new cylinder, it is said, was one of the smoothest jobs ever done at the Detroit shipbuilding works. The part chipped off by the breaking of a follower bolt was welded on so cleverly that it can scarcely be noticed. A daily service between Buffalo and Detroit will now be in effect.

What with the small receipts of grain, no coal shipping and a fleet of idle tugs the river is very quiet compared to this time last year. Should the hard coal miners resume work at once, after the three months' strike, it would take a couple of weeks or better before any coal for lake shipment would be loaded. The eastern trade would first be supplied all rail and then would come the general stocking up of the local trade before shipping to the west and northwest would be considered. As there is no indication of the strike being settled at an early date, the slackness on the river seems likely to remain until the grain movement is again brisk.

We had a visit here last week of the little old Chicago schooner Winnie Wing, built 35 years ago, she carried about 20,000 bushels of corn. This week three more schooners arrived from Chicago corn laden, after being fifteen days on the trip down. They were the Oliver Mitchell, Bertha Barnes and Minnie Slawson. It is said that it was the intention of the shippers not to have the cargoes reach Buffalo until August 1. The schooners are chartered by the day, and the captains look upon the operations of the grain market manipulators as a remarkably good thing for them, giving them as it does a genuine holiday. The Slawson was towed to her elevator by a Great Lakes tug. On reaching the dock it is said that her crew notified the captain that he must not again take a syndicate line. Failing to observe the warning he would find himself minus a crew to get his schooner out of the port again.

The Westcott Wrecking Co. and the Isaac Watt Wrecking Co., both Canadian concerns, controlling the wreckers Wales and Saginaw, respectively, have been merged and will hereafter be known as the Great Lakes Towing Co., Ltd. Capt. J. W. Westcott is president and general manager; E. F. Pardee, of Sarnia, is secretary and treasurer, and these officers with Capt. Isaac Watt, constitute the board of directors.

William Livingstone, president of the Lake Carriers' Association, and Capt. George P. McKay, of Cleveland, have been at Ottawa in conference with the minister of marine and Col. Anderson, chief of engineers, relative to the establishment of additional lights and aids to navigation on the lakes, Georgian Bay and the Sault river, along the Canadian border. They are highly pleased with the result of their efforts and the courtesy of the officials.

Capt. Charles Keller, Corps of Engineers, U. S. A., reporting from the Grand Rapids, Mich., district submits the following list for improvements in 1904: Harbor of Michigan City, Ind., \$40,000; Saugatuck Harbor and Kalamazoo river, Mich., \$185,000; Grand river, Michigan, \$150,000; Muskegon Harbor, \$253,000; harbors at Pentwater and White Lake, Mich., \$29,000; Ludington Harbor, \$180,000; Charlevoix Harbor, Mich., \$47,000, and Peoskey Harbor, Mich., \$33,000.

Officials of the Craig Ship Building Co., of Toledo, seem to be very largely interested in the Adams Transportation Co., of Detroit, for whom they have just finished a large steel freighter with a second one under way. Articles of incorporation of the Adams Co., just filed in Detroit, show a paid up capital of \$115,000. The first steamer is, of course, costing more than \$115,000. The balance of her cost has been taken care of by bonds. The stock is divided as follows: Thomas Adams, Detroit, 575 shares; John I. Adams, Detroit, 20 shares; John Craig, Toledo, 852 shares; George L. Craig, Toledo, 427 shares; John F. Craig, Toledo, 426 shares.

It is thought here that George T. Wisner, Esq., is just as eligible to be a member of the international board for the maintenance of lake levels as H. D. Goulder, Esq., of Cleveland, is. Senator McMillan is open in his candidacy for Mr. Wisner. The framers of the bill, contemplated, specifically, that there should be a civilian engineer on the commission, and the claim that Mr. Wisner is ineligible because he was a member of the recent deep waterway commission is without foundation. There is absolutely no clause in the bill, or other provision which warrants such a claim. The entire solution of the matter now rests entirely with the President and he will no doubt be well advised in the matter.

During the sudden gale which struck this vicinity on Sunday, the heavy travelling crane at the Wyandotte yards of the Detroit Ship Building Co. was blown down and fell upon the car ferry transport and smashed in the cabin, completely wrecking the upper works. The crane was anchored with chains, but these broke in the storm and the traveler ran the full length of the frame and over the blocks at the end and fell upon the car ferry. The work of clearing up the wreck is being vigorously pushed. The car ferry on which it fell is a wreck above the main deck and the damage to it alone will be about \$12,000. Repairs to the crane will cost between \$15,000 and \$20,000 and will take a month. The company has employed a large force of men and work on the two Anchor Liners will not be interrupted.

Daniel J. Keefe, president of the International Longshoremen, Marine and Transport Workers' Association, left here on Tuesday for Cleveland, where he will endeavor to have a conference with officials of the Great Lakes Towing Co. with a view to closing the strike of the tugmen on the Great Lakes. Mr. Keefe said before leaving that he had no plan to make public whereby he expected to bring peace out of the long fought labor war, but he thought the trouble could be settled before very long. Leaders of the marine labor interests generally have ceased to fear that the Longshoremen's Association will be drawn into active support of the striking tugmen. The fact that Grand President McCarle, of the Licensed Tugmen's Union has been refused conferences with tug trust officials is held to remove him from the list of mediators and his place in forthcoming negotiations will doubtless be taken by President Keefe.

Vessel masters trading to Lake Superior have expressed some anxiety regarding a cluster of piling that is being driven in the upper St. Mary's river, opposite Big Point, between the upper end of the canal and Point Aux Pins, but the work will not prove an obstruction to navigation. Major W. H. Bixby, United States Engineer, says regarding it: "This piling is a temporary construction authorized by the Secretary of War in connection with the Sault City water works intake pipe and crib. At present there is plenty of width of channel around the temporary construction. When the intake is finished the piling will have been cut off or pulled out so as to leave forty feet clear depth over all constructions which may lie above the natural bottom. The inspection of this work is under the local charge of Assistant Engineer Joseph Ripley at the Sault, who has been keeping himself well posted as to the progress of the work since actual construction was commenced."

CLEVELAND.

The steam yacht Wadena, built at this port, and owned by J. H. Wade arrived here on Wednesday after an absence of several years, during which time she has about circled the globe.

The Great Register Co., of Iowa, has qualified to do business in Ohio. The capital stock is \$10,000. The company will class and register vessels. F. D. Herriman will represent the company at his present office in the Perry-Payne building.

W. E. Chapman, connected with Capt. W. C. Richardson in the vessel brokerage business is making a round trip on the new steel steamer W. C. Richardson. This is the first time he has been up the lakes for thirteen years, although having been connected with the marine business during that entire time.

The steamer La Salle, of the Pittsburgh Steamship Co., Capt. W. D. Graham, was delayed sailing on Monday owing to firemen and oilers quitting on account of the boat being towed by a Great Lakes Towing Co. tug handled by non-union labor. The La Salle was finally towed to the breakwater to await another crew.

Major Kuffner, the government engineer in charge of works on the Muskingum river, suggests a ship canal to connect Lake Erie and the Ohio river. He says it would require the restoration of a lock and dam above Zanesville, and the dredging of shoals in the Muskingum river and Ohio canal. The whole work, he says, would not cost over \$110,000.

A recent transfer of masters in the Pittsburgh Steamship Co.'s fleet are as follows: Capt. Jerry Talbot of the Mariska was transferred to the Clarence A. Black; Capt. Gegenheimer, of the A. B. Wolvin, was placed in command of the Mariska and Capt. Hull was put in command of the A. B. Wolvin. Capt. Talbot will take the Black to the "Soo."

Howard Saunders, formerly of the American Ship Building Co., this city, has resigned his position as general foreman of construction with the New York ship building Co., of Camden, N. J. to accept the position of general superintendent of construction for the J. M. Guffey Petroleum Co., for which the New York Ship Building Co. built the boat M. S. Dollar, later changed to the J. M. Guffey.

Mr. J. C. Gilchrist is now owner of the steel steamer Thomas Maytham, built for her late owners at Chicago in 1892, and now valued for insurance purposes at \$130,000. Her gross tonnage is 2,330. She was owned by John Kelderhouse and the Ed. C. and Thomas Maytham estate. The Maytham has been a good earner and is a desirable acquisition to any fleet. It is understood that Mr. Gilchrist has options on several other boats and will still further increase his large fleet.

Mr. Daniel Kelley, representing the Marconi Wireless Telegraph Co., of America, called on General Manager Newman, of the Cleveland & Buffalo Transit Co., and other steamboat managers. Mr. Kelley, who has visited all the principal ports, said that he received a great deal of encouragement from the managers of the passenger lines, but that the owners of the freighters do not appear to be anxious to take up the new system. He said that the company would have stations at all the principal lake ports.

The two big passenger boats of the Northern Steamship Co., the North-West and the North-Land, are now running on time. When the North-West came in here on her last trip she was ten minutes ahead of her schedule, and when the North-Land arrived she was square on the minute. The boats had new machinery installed last winter, which was slow in working properly. The officers of the boats say that they have no difficulty now in making schedule time between Buffalo and Chicago. The handsome boats are growing more into popular favor every trip they make, but as felt in all other passenger routes the weather so far has been decidedly against lake travel.

The officers of the Republic Iron Co., an old shipper from the Marquette range have been approached with an offer to purchase all their holdings of stock and effect a controlling interest. Messrs. G. W. R. Mattison, Samuel Mather, J. V. Painter, A. Hart, W. F. Dummer, N. M. Kaufman, William D. Rees, W. B. Castle, J. C. Gilchrist and Jacob Perkins, directors and stockholders of the company have signified their willingness and desire to sell the stock which they respectively own or control on the basis of \$15 per share and several stockholders have sent their certificates to W. D. Rees, treasurer of the company. The Republic Iron Co. owns the steel steamer Republic, the wooden steamer Continental and schooner or tow barge Grace Holland.

The passenger steamer City of Cleveland, of the D. & C. Line, met with an accident on Wednesday, that will put her out of business for at least a week. The big sidewheeler was bound here from Detroit and was about ten miles east of Southeast shoal when she broke her shaft at the main bearing on the outboard end. After her passengers and baggage and perishable freight were transferred to the steamer State of New York, she was picked up by the

steamer Joliet, of the Pittsburgh Steamship Co.'s fleet, and towed to Detroit. The steamer City of the Straits took the City of Cleveland's place on Wednesday night and she will probably be kept on the route until repairs are made on the City of Cleveland. Mr. D. C. McIntire, general agent of the D. & C. Line, and the company had an extra shaft at Detroit, and that the changes would be made as fast as possible.

Major Dan. C. Kingman's report on river and harbor work at ports on the south shore of Lake Erie asks for \$350,000 to expend on the new east breakwater and harbor entrance the next fiscal year, in addition to any balance on hand July 1, 1903. He estimates the final cost of the project to be \$4,276,756, basing this figure on the supposition that the breakwater will be extended to Gordon Park. The engineer says the most practical location of the harbor is along the lake front, inasmuch as a satisfactory harbor can never be had along the Cuyahoga river. The total appropriations made by Congress up to June 30, 1902, for improvements at Cleveland were \$3,479,631.61, and the total expended up to that date was \$2,679,261.68. For other ports he recommends the following appropriations for next year: Ashtabula, \$125,520; Fairport, \$200,000; Conneaut, \$100,000.

DULUTH-SUPERIOR.

Capt. F. P. Houghton, of the steamer J. J. Hill, has been appointed master of the new steamer James H. Hoyt, and Capt. W. B. McGregor of the Clarence A. Black will take the Hill.

W. J. Olcott, who has been superintendent of Mesaba range mines for the United States Steel Corporation, has been made manager of mines for the corporation, his new duties covering all ranges.

It is estimated by a prominent iron ore and railroad man that the shipments of iron ore from the head of the lakes this season will exceed 13,000,000 tons, or about 2,000,000 tons more than the aggregate for last season's hitherto unbeaten record.

The Bureau of Navigation, Treasury Department, Washington, D. C., has granted official numbers this week to the steel cargo steamer James H. Hoyt, 3,934 tons gross and 2,792 tons net, built at the West Superior, Wis., yards, of the American Ship Building Co., and hailing from Duluth, Minn.

John G. Williams has returned from Utah where in the capacity of attorney he closed the purchase by P. L. Kimberly and Frank Buhl, of Sharon, Pa., of enormous deposits of iron ore in Iron county, Utah. The deal was one of the largest iron deals ever made in the country, the consideration being \$2,250,000.

Lumber loaders of Lake Superior have given notice that an increase of ten cents an hour will be expected by them, the increase to become effective at once. In announcing the raise the men except all vessels owned by members of the Lumber Carriers' Association, which they have contracted to load all season at 52½ cents an hour. All other vessels must pay 62½ cents.

James Taylor, master of the tug Abbott, of the local branch of the Great Lakes Towing Co., shot George Wilson, engineer of the tug Raber, at West Superior on Sunday. Two shots were fired, and Wilson is expected to die. Capt. Taylor, who is under arrest, claims that Wilson and others were engaged in throwing rocks at his boat, and that he warned them not to repeat it, but they did not heed his warning.

That the successful capitalist, John W. Gates, is now here and taking interest in the Douglas county, Wis., copper region, is creating a feeling of expectancy in mineral circles at the head of the lakes. The copper ranges of Northwestern Wisconsin, rich beyond a doubt, have long waited for a financial organizer to rush funds along for development and this is now secured as Mr. Gates has put his hand to the plough.

A syndicate of Pittsburg men, headed by E. H. Jennings, has just paid \$25,000 cash for the fee of lands owned by the Mesaba Central Land & Exploration Co., consisting of thirty-nine forty-acre tracts on the Mesaba range. Alfred Merritt is president of the Land & Exploration Co. On the land is the Republic mine, a steam shovel proposition, which contains 6,000,000 tons of high grade ore. A contract has been awarded to strip 1,000,000 yards from over the ore body and the mine may enter the list of shippers late this fall or early next spring. It is not known here who Jennings and his associates represent.

Last week the tug Gladiator came through the Superior entry with one of the largest rafts of logs that has been towed through the entry this summer. The logs were consigned to Merrill & Ring's mill at Duluth. The Gettysburg and Gladiator have brought a number of large rafts from the Pigeon river drive. Log towing from the rivers on the south shore of the lake, has been completed when one more raft is brought in from the Brule. The Stevens Towing Co. has been doing the work with a number of tugs in the service. The movement has been very active, and it is estimated that nearly 60,000,000 feet of logs have been towed to the head of the lakes thus far this summer.

CONTINUED ON PAGE 11.

LAKE COMMERCE THROUGH ST. MARY'S FALLS CANALS.

The following statistical report of the commerce passing through canals at Sault Ste. Marie, Mich., and Ontario, during the season of 1901, has been compiled by Major W. H. Bixby, Corps of Engineers, U. S. A., and will form part of his annual report for the fiscal year ended June 30, 1902, as submitted to Col. G. J. Lydecker, Corps of Engineers, U. S. A., at Detroit.

The total freight traffic of 28,403,065 net tons is the maximum traffic in the history of the canals. It exceeds the traffic of 1900 by 2,759,992 tons, or 11 per cent. The total number of passengers was 59,663, an increase of 1,108, or 2 per cent. The season of navigation was open for a period of 8 months and 6 days, during which time the average monthly traffic was 3,463,788 tons.

The American canal passed 25,582,038 freight tons, being an increase of 1,974,684 net tons over the year 1900, or 8 per cent.; the number of passengers was 29,701, a decrease of 6,612, or 18 per cent. as compared with 1900.

The Canadian canal passed 2,821,027 freight tons, being an increase of 785,308 net tons or 39 per cent. The number of passengers was 29,962, an increase of 7,720, or 35 per cent. as compared with 1900.

Of the total freight the American canal passed 90 per cent. and 50 per cent. of the total number of passengers; the Canadian canal 10 per cent. and 50 per cent. respectively.

The total vessel passages through both canals numbered 20,041 as against 19,452 for the year 1900, an increase of 589, or 3 per cent.; the total lockages numbered 11,321, which is an increase of 636, or 6 per cent.

The American canal was opened April 26 and closed December 11, 1901; season, 230 days. The Canadian canal was opened April 20 and closed December 21, 1901; season, 246 days.

While the traffic exceeds that of the preceding year by 11 per cent, yet this is less than the average annual percentage of increase; but the actual gain of 2,759,992 tons is the largest for any one year excepting that of 4,021,146 tons in 1899. The gain was made wholly after September 1. The falling off in the early part of the season was due to the ice blockade in the St. Clair river and to the marine engineers' strike.

The increased tonnage was general for all the principal items of freight with the exception of soft coal, copper and building stone.

The depth of water in channels permitted a safe draft of 17½ to 19 feet during the season.

Most of the 52 new vessels put in commission for the Lake Superior trade, were large steam freighters ranging from 375 to 450 feet in length.

The growth of the Lake Superior commerce during the past half century has been phenomenal. The estimated amount and value of articles which crossed the portage at Sault Ste. Marie in 1851, to and from Lake Superior, was 12,600 net tons, worth \$1,675,000.

In 1861, a decade later, the traffic through the state locks was 88,000 tons, valued at \$6,000,000.

In 1871, 585,000 tons, estimated value, \$13,000,000.

In 1881, through the state and Weitzel locks, 1,567,741 tons, at \$30,000,000.

In 1891, through Weitzel lock, 8,888,759 tons, at \$128,178,208.

In 1901, through Weitzel, Poe and Canadian locks, 28,403,065 tons, at \$289,906,865.

Thus, the average annual percentage of increase of each year's traffic over that of the preceding year has been as follows for the decades:

1851-1861.....	21	per cent.
1861-1871.....	21	per cent.
1871-1881.....	10¼	per cent.
1881-1891.....	19	per cent.
1891-1901.....	12¼	per cent.
Average.....	16 2/3	per cent.

The largest cargoes carried through the canal averaged 8,202 tons, the aggregate being 49,213 tons, comprised of six cargoes carried in large steel tow barges. The largest cargoes of steamers shows a mean of 8,184, and an aggregate of 32,738 tons, comprised in four cargoes.

The steel tow barge Manila, Pittsburg Steamship Co., carried the largest single cargo, 8,288 tons, and the steamer Wm. Edenborn, of the same company, 8,222 tons. The steamer Presque Isle, owned by the Cleveland Cliffs Iron Co., carried the maximum record for the season, of 161,375 tons. For miles run the Buffalo, owned by the N. Y. Central & Hudson River R. R. Co., traveled 41,370 and the record for mile tons is credited to the steamer J. J. Albright, owned by the Aetna Steamship Co., showing a total of 132,822,226.

The maximum traffic for a single day was on September 2, when 230,156 freight tons were passed by 150 vessels, whose registered tonnage amounted to 202,525 tons. The minimum traffic for a single day was on April 24, when 1 ton of freight passed through the canals by 9 vessels, whose registered tonnage amounted to 1,092 tons.

American vessels carried 96 per cent. of the total freight and 28 per cent. of the total passengers.

Canadian vessels carried 4 per cent. of the total freight and 72 per cent. of the total passengers.

Unregistered American crafts carried 30,666 tons of freight in 232 passages, or an average of 132 362-2,000 tons per passage.

Unregistered Canadian crafts carried 19,134 tons of freight in 181 passages, or an average of 105 1,425-2,000 tons per passage.

Of the 20,041 passages for the season, 3,719 were by 91 vessels under 100 tons register, or an average of 37 tons each. The total freight carried by such craft amounted to 1,858 tons.

The relative values of the different commodities are as follows:

	per cent.
Coal, (anthracite and bituminous).....	5.3
Cereals (wheat, rye, oats, corn, barley, flax and flour).....	28.9
Iron, (iron ore, manufactured and pig iron).....	26.6
Copper.....	9.1
Lumber.....	5.7
All other products.....	24.4

The American canal records show that vessels necessarily spent 25,042 hours and 34 minutes in canal or an average of 1 hour, 34 minutes and 52 seconds, which includes time waiting for lockage and passage through locks and canal, the latter being 1 3-5 miles long. Other delays at canal, which included taking on supplies, waiting for daylight or favorable weather, amounted to 17,581 hours and 16 minutes.

Statistical summary of lake commerce through canals at Sault Ste. Marie, Michigan and Ontario, for season of 1901:

Total mile-tons.....	23,383,861,987
Total freight carried, net tons.....	28,403,065
Total valuation placed on freight carried.....	\$289,906,865
Average value per ton of freight carried.....	\$10.21
Total amount paid for freight transportation.....	\$23,217,974.07
Average distance freight was carried, miles.....	823.3
Cost per mile, per ton, mills.....	.99
Average cost per ton for freight transportation.....	\$0.82
Total number registered vessels using canals.....	893
Total number of passages by unregistered craft carrying freight.....	413
Time American canal was operated, days.....	230
Time Canadian canal was operated, days.....	246
Total valuation placed on registered vessels.....	\$60,556,100
Total number of passengers transported.....	59,663

Freight carried by	
Registered vessels, tons.....	28,353,265
Unregistered vessels, tons.....	49,800
American vessels, per cent.....	96
Canadian vessels, per cent.....	4

Passengers carried by	
American vessels, per cent.....	28
Canadian vessels, per cent.....	72

The canal post office delivered 118,270 pieces of mail during the season, consisting of 107,643 letters, 4,926 postals, 5,046 newspapers and 655 parcels. In addition to this, 905 pieces were returned to the city postoffice after being held 30 days uncalled for, and 2,441 pieces were forwarded to new addresses. This shows an increase over the previous year of 13,683 pieces of mail. The carrying, distributing and delivery of marine mail was done by the office watchmen in addition to their regular duties of receiving masters' reports and keeping the traffic records.

PROGRESS ON NAVAL VESSELS.

In the official statement of the degree of completion of vessels under construction for the U. S. Navy, July 1, the greatest progress made on any one vessel was on the armored cruiser Colorado, being constructed by the Cramps. She has advanced five per cent. in completion between June 1 and July 1. The average advance on other vessels where advance has been made, has been from two to four per cent. Commencing with the battleships, the Maine, Missouri, Ohio, Georgia, and New Jersey, have advanced one per cent., and the Rhode Island and Virginia two per cent. The keel of the Nebraska not having been laid a month yet, no advance could be reported on her. Of the armored cruisers, the California has advanced one per cent., the West Virginia and the Maryland three per cent., the Pennsylvania four per cent., and the Colorado five per cent. No advance has been made on the South Dakota.

The record as to the protected cruisers shows that an advance of one per cent. has been made on the Des Moines, Chattanooga, Galveston, and Cleveland, two per cent. advance has been made on the Denver, three on the Tacoma, and four on the Charleston. No advance was made on the St. Louis and Milwaukee.

On the monitors Arkansas and Florida an advance of one per cent. has been made, and three per cent. on the Wyoming. No advance has been made on the Nevada, which is 93 per cent. toward completion.

On the torpedo boat destroyers, the Hopkins has been advanced one per cent., the Truxtun and Worden, two; the Hull, Paul Jones and Whipple, three, and on the remaining seven no advance was made although they are well on toward completion. Five of them are as high as 99 per cent. toward completion, and the remaining two 72 and 98 per cent.

No progress was made on any of the seven torpedo boats, although like the torpedo boat destroyers, they are well up toward completion. The submarine torpedo boat Pike, which is 74 per cent. toward completion advanced two per cent. during June, but no advance was made on the remaining six, which are from 74 to 99 per cent. finished.

OVER-CAPITALIZATION AND THE REMEDY.

The New York Sun publishes a list of large trusts that are supposed to be in more or less financial trouble, and clearly traces the cause of their woe to over-capitalization.

The country has had a long era of prosperity, and is more prosperous to-day than at any previous period in its history. Most of these over-capitalized trusts were organized since the period of good times set in, and if they had been on a sound foundation and properly managed, there is no reason why they should not have made money, nor why their stock and securities should not be gilt-edged in the market at a time when good four per cent. stocks are selling above par.

The Sun quotes the head of one of the largest and one of the healthiest of industrial corporations, to the effect that the trouble with the concerns that are in difficulties lies within themselves rather than without. "They were conceived of folly, launched upon wind, and are kept going by public credulity. They are loaded down with a weight of capital under which they can only stagger." The only salvation of concerns in this fix is reorganization and the scaling down of capital until they reach a solid financial basis. If this is not done in time, many will have to go into the hands of receivers the crash will be felt by thousands of small investors, and the whole business of the country will be affected.

It is the duty of men who have to do with large financial affairs to sit down on these shaky concerns at once, and to sit down hard. Such concerns are by no means confined to the East. The West has its full share of companies that are over-capitalized. Perhaps they do not average so large in size, but are quite as tenuous when assets are compared with liabilities.

One of the great business men of the West advised, sometime ago, a perfect remedy against the organization of corporations upon an over-capitalized basis, and that was the requirement by law, that every share of stock subscribed be paid for at par in cash before it could be issued. With such a requirement as this the corporation would be subject to only the ordinary vicissitudes of bad management and bad general business conditions. The foundation would be solid. But upon a shaky foundation no skill and no good fortune will suffice to build a solid structure. This is demonstrated by the existing conditions wherein we see one unsubstantial business structure after another toppling over because it is like a pyramid set upon its apex.

BRITISH SHIPPING AND TONNAGE.

According to the annual statement of the navigation and shipping of the United Kingdom for 1901, just published, 130,931 steamers and sailing ships, aggregating 97,351,013 tons net, entered and cleared at British ports with cargoes and in ballast from and to foreign countries and British possessions last year (105,461 vessels, of 79,655,540 tons, having cargoes), against 136,696 vessels, of 98,523,693 tons, in 1900, and 134,175 vessels, of 97,782,887 tons in 1899. Of the total for last year 59,381 vessels, of 34,561,172 tons, were foreign owned, as compared with 61,385 vessels, and 35,812,857 tons in 1900, and 57,272 vessels of 32,138,808 tons in 1899.

Last year 78,001 British vessels, making a total of 10,128,676 tons net, and 1,033 foreign vessels, of 969,500 tons net, entered and cleared at British ports for British possessions with cargo, the foreign per centage being 9.57.

The above total of 969,500 tons of foreign vessels engaged last year in carrying cargoes between the United Kingdom and its possessions, was made up as follows: Russian, 39,833 tons; Swedish, 32,117 tons; Norwegian, 460,988 tons; Danish, 22,365 tons; German, 215,539 tons; Dutch, 30,097 tons; Belgian, 3,012 tons; French, 50,449 tons; Spanish, 19,651 tons; Italian, 62,261 tons; Austro-Hungarian, 12,102 tons; United States, 7,432 tons, and other foreign countries, 13,654 tons.

In the total of vessels entering and clearing with cargo and in ballast, London stands first with 19,661 vessels, totalling 17,275,645 tons; Cardiff second, with 10,979 vessels, and 12,737,057 tons, and Liverpool third, with 6,517 vessels and 12,636,225 tons.

In the British coasting trade 566,024 vessels of 110,263,288 tons net entered and cleared with cargoes and in ballast of which 11,981 vessels, of 6,374,540 tons were foreigners. Of these vessels 344,756 of 60,779,321 tons had cargoes, of which 1,586 vessels, of 378,108 tons were foreign owned. At the end of last year 35,353 vessels of 11,120,388 tons net, were owned in the United Kingdom and her colonies, against 34,875 vessels and 10,751,392 tons net in 1900, an increase of 83 vessels, and 303,270 tons. Most tonnage was owned at Liverpool, 2,364,919 tons; London coming second with 1,850,809 tons. Excluding vessels employed in inland navigation and yachts, 14,112 British vessels, totalling 9,175,930 tons, were employed on the 31st December last, with 239,691 persons, of which 35,950 were foreigners and 36,254 Lascars.

Towage.—The fact that a tug did not report for service in taking out a tow at the time agreed upon, and did not start until several hours after the appointed time, when the tide was not so favorable, will not support an action for an injury to the tow on the voyage where the owner accepted the service of the tug after her arrival, and the tow was then taken out with his consent. The Startle, 115 Fed. Rep. (U. S.) 555.

NAVIGATION BY SOUNDINGS.

In fog and thick weather in the vicinity of land, the lead is the principal instrument for finding the place the ship is in. The configuration of the bottom of the sea is delineated in charts, or should be delineated, by horizontal cuts or curves at different depths, which curves are stationary lines of position, easily traced by the lead. A curve of equal depth along a certain part of the coast, or around shoals and reefs, at a safe distance from the danger nearest to the curve, is called a safety curve. Outside the safety curve the ship is free to shape her courses. Any curve of greater depth than the depth of the safety curve is a guiding curve, or may be used as such. A guiding curve may be compared to a stationary cable, with a sliding ring to which the vessel is chained, compelling her to move along as directed by cable. Thus, guiding curves traced by the lead insure the safety of a vessel in fog and thick weather, under all circumstances, no matter at which particular point of the curve she may be; and therefore, as long as she sticks to the curve, a knowledge of the exact place the ship is in is not required. There are, however, other reasons rendering such knowledge desirable or necessary, which, with a known point of departure at the curve, is obtained nearly correct from distances by the ground log.

Navigation by soundings is essentially navigation by safety curves, and guiding curves. On a circular guiding curve, the course to be made good is always tangential to the curve, which property furnishes the means for finding the place the ship is in. In tracing a curve by the lead, courses and distances made good, when plotted, form a zigzag line, or part of a polygon, deviating more or less from the curve on the chart. The course tangential to the curve differs from the course made good at a certain time, by a small angle or correction, which by means of the soundings taken is easily found by inspection; and the tangent point of the corrected course is the place the ship is or was in at the specified time.

The distance to be run on any course nearly agreeing with the curve, depends on the accuracy with which the curve is to be traced. If the deviation from the curve is not to exceed 1/4 mile, the distance on any course is not to exceed the square root of the diameter of the curve and if the deviation from the curve is not to be more than 1/2 mile, the distance to be run is not to exceed the square root of two diameters of the curve. The semi-diameter of the curve is easily found by inspection of chart.

Without guiding curves the safety of a vessel in fog and thick weather depends entirely upon compass and ground log; and as direction always precedes distance, the compass in combination with the direction of the ground log line is the main guide, the ground log line indicating the direction of the course made good. The course steered, to be transferred to the chart, requires four course corrections: deviation, leeway, current, and variation, dependent on observations more or less liable to error. An error of but 1/2 degree in course and in each of the corrections mentioned, may cause an error of 2 1/2 degrees or 1/4 point in the course made good, equivalent to a sideway error in position of 1-20 the distance run. And as distances by the ground log are timed by seconds, an error of 1/2 second in turning the glass causes an error in the distance of 1-30 the distance run, which an error in stopping the line, readily increases to 1-20 the distance run. The error in position by compass and ground log, is, therefore, represented by a square, the sides of which equal 1-10 the distance run, the center of the square being the position by compass and ground log. Whenever any part of this square touches the guiding curve to be made, the lead has to come into play, in order to get hold of that curve in time, and not to cross the safety curve. The "error square" is a safeguard in picking up guiding curves and running courses exclusively by compass and ground log.

In the "error square" the sounding taken pertains to a certain curve, its part within the square, making a certain angle with the ship's course; and if this angle is nearly zero, only the course is corrected by the sounding; and if this angle is nearly 90 degrees, only the distance is corrected by the sounding.

A course tangential to a guiding curve intersecting another curve in the vicinity at an angle of from 4 to 12 points, furnishes in the point of intersection the place the ship is in. The error in position, on account of an error in course, is confined to a sideway error on the curve, equal to 1-14 to 1-20 the distance from the tangent point on the first curve, which error for short distances may safely be neglected.

Straight parts of a guiding curve, as course continued until intersecting another curve at an angle of from 4 to 12 points, furnish in the point of intersection the place the ship is in. The sideway error in position, on account of an error in course, is similar to that in the preceding case and for short distances may be neglected. This method requires no knowledge of the deviation and variation; but may be used to find the deviation of the compass, if the course corrections for leeway, current, and variation are known.

Another method to find the place the ship is in, depending solely on correct courses, furnish two tangents, of the same or different curves, forming an angle of

from 4 to 12 points. The intersection point of the tangents is the place the ship is in, or rather, was in.

By any of these methods distances by ground log are at once corrected.

To shorten distances on a guiding curve, short cuts by chords may be used; always keeping in mind to get hold again of the guiding curve in time. A wavy line, as guiding curve, may in a similar way be shortened and straightened by chords.

An error of 1/4 point in course, and in the distance of 1-20 the distance run, causes on a run of 100 miles, an error in position of 5 miles, which may be considered to be the maximum error permissible. Therefore, after a run of 100 miles by ground log without any guiding curves, verification of position is required, and courses have to be shaped with regard to it. To keep errors in position within narrow limits, and bring them down to a minimum, verification of position is required as often as an opportunity offers, which opportunities depend in a great measure on the shaping of courses with regard to guiding curves. In fog and thick weather not the shortest route between two places is required, but the safest route; and therefore courses in fog and thick weather may differ entirely from courses in clear weather.

The rounding of a cape, of shoals and reefs, and the avoiding of all dangers to navigation along the shore, is easily and safely accomplished in fog and thick weather, by safety curves and guiding curves adhered to by the lead; from which it is evident, that, stress of weather excepted, strandings of battleships, cruisers, schoolships, transports, ocean liners, passenger steamers, and common tramps, in all parts of the world, would not occur, if navigators and their instructors and examiners knew their business, and had been trained in the use of the ground log, and the judicious use of the lead.

Chicago, July 1902.

JOHN MAURICE.

Civil Engineer and Nautical Expert.

EASTERN FREIGHTS.

Messrs. Funch, Edye & Co., New York, report the condition of the eastern freight market as follows:

Chartering business during the present week has been on a somewhat limited scale, as indicated by the small number of fixtures reported. The only direction in which any activity has been manifested is for sugar tonnage from Cuba to New Orleans and ports north of Hatteras and additional steamers could be placed in this trade; the last two or three fixtures have been effected at an advance of 1/2 cent per 100 pounds over recent transactions. Three grain charters are reported from Baltimore at very low figures, which goes to show that shippers are unable to effect new business, excepting on a very low freight basis. For future loading grain charterers are not anxious to commit themselves unless tonnage can be obtained at rates ruling for nearby loading. Timber business from the Gulf is, for the time being, practically neglected, but some few charters have been made for deals from the British Provinces at reduced figures. The only time business available is for steamers on short trips in the West India trade, taken principally to meet the demand for the carrying of sugar.

Chartering for sail tonnage continues very limited and confined chiefly to far east case petroleum vessels at the recent modification in rates. Otherwise there is nothing of interest to note.

Grain to Liverpool, London or Glasgow, 3 cents; Hull, 4 cents; Newcastle or Bristol, 4 1/2 cents, and Leith, 5 cents.

STATEMENT OF THE VISIBLE SUPPLY OF GRAIN.

As compiled by George F. Stone, Secretary Chicago Board of Trade Saturday, July 26, 1902

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo	544,000	309,000	63,000	46,000	8,000
Chicago	2,288,000	5,133,000	277,000	109,000	.....
Detroit	281,000	.....	4,000	2,000	.....
Duluth	2,855,000	36,000	.....	1,000	54,000
Fort William, Ont.	623,000	.....	.....	.....	.....
Milwaukee	42,000	1,000	23,000	2,000	16,000
Port Arthur, Ont.	150,000	.....	.....	.....	.....
Toledo	477,000	135,000	79,000	15,000	.....
Toronto	25,000	.....	25,000	26,000	.....
On Canals	504,000	.....	24,000	.....	9,000
On Lakes	747,000	1,048,000	18,000	.....	.....
On Mississippi Riv'r	103,000	.....	.....	.....	.....
Grand Total	21,591,000	7,486,000	834,000	250,000	100,000
Corresponding Date, 1901	29,264,000	13,387,000	5,667,000	558,000	308,000
Increase for week ..	1,176,000	983,000	176,000	540,000	.....
Decrease " " .....	.....	.....	.....	.....	19,000

While the stock of grain at lake ports only is here given, the total shows the figure for the entire country except the Pacific Slope.

The White Star Liner Oceanic now owned by the Morgan syndicate, has the largest tonnage of any vessel afloat at the present time, viz., 17,274 tons. She was built in 1899, and her speed is 19 knots per hour. The Deutschland is the next in point of tonnage, and the swiftest afloat in steaming qualities.

SHIPPING AND MARINE JUDICIAL DECISIONS.

Collision—Steam Vessels Crossing—Confusion of Signals.—A ferryboat and tug each held in fault for a collision in East river for improper manoeuvres and for changing signals for crossing, causing confusion in the management of both. In re Brooklyn Ferry Co., of New York, Fed. Rep. (U. S.) 564.

Value of Salvaged Cargo—Private Sale by Owner of Vessel.—A sale of lumber jettisoned from a ship, and subsequently rafted and salvaged by others, by an agent of the ship, at private sale and without advertisement, does not fix its value for the purpose of determining the compensation to which the salvors are entitled. The Thomas L. James, 115 Fed. Rep. (U. S.) 566.

Loss of Fishing Fleet.—Evidence considered, and held not to establish a charge of negligence on the part of a tug which rendered it liable for the loss of a part of a fishing fleet in tow, which broke away from others of the boats while anchored at night, when the weather was not stormy, and from a cause not appearing. The Startle, 115 Fed. Rep. (U. S.) 555.

Carrier—Reassumption of Liability—Return of Goods Not Called for.—Evidence—Sufficiency.—In an action to hold a carrier liable for goods which had been shipped to the consignee and stored on his failure to call for them after notification, it was error to submit the issue of defendant's reassumption of liability as a carrier, where the only evidence that the carrier had agreed to return the goods to the consignor was a freight bill, not shown to refer in any way to the goods in question. Samuelson vs. Providence & S. S. S. Co., 77 N. Y. Supp. 157.

Incident Causes of Injury.—Delay by a tug in proceeding with its tow, or other error in navigation, although negligence, will not render it liable for an injury to the tow caused by the breaking away and loss of some of the boats while anchored, where there was no direct casual connection between such acts and the loss, which resulted directly from intervening causes. The Startle, 115 Fed. Rep. (U. S.) 555.

Grounding—Incompetence of Pilot.—Where at the time of making a contract for towing a fishing fleet in Delaware Bay the master of the tug stated that he was wholly unacquainted with the waters at a certain part of the route, and the owner of the fleet agreed to put one of his men on board as a pilot when such place was reached, which he did, such pilot was not the agent of the tug, but of the owner of the tow, and the tug cannot be held in fault for grounding through his ignorance or incompetence, after the master had placed him in charge of the navigation at the place designated. The Startle, 115 Fed. Rep. (U. S.) 555.

Obligation of Tug—Liability for Loss or Injury of Tow.—A tug which undertakes a towing service is not an insurer of the safe delivery of the tow, but the obligation imposed on it by the law is that it shall be reasonably adequate to the service undertaken, and that those in charge shall possess and exercise the skill and care ordinarily exercised by those having experience in the same service. Where the master is shown to have been an experienced and competent man, much must be left, as occasion arises, to his judgment and discretion in the management of the tow, and the burden rests upon the owner of the tow to prove that its loss or injury was due to negligence on the part of the owner of the tug to render the latter liable therefor. The Startle, 115 Fed. Rep. (U. S.) 555.

Salvage—Rescue of Stranded Schooner—Compensation.—The schooner Thomas L. James, loaded with lumber, was run ashore by the master "to save life" on the coast of North Carolina, during a storm, and stranded between two bars in a position of extreme peril. She was regarded by her master and mate as being in an almost hopeless condition. Her rudder and some sails were gone. She had three feet of water in her hold, and while she drew thirteen feet as loaded there was but ten and one-half feet at the place of stranding at ordinary high water. Libelants, ten in number, went on board, and there remained for three days, in a position of great peril, most of the crew being sick, and the master and mate having been taken off the first day. Libelants pumped out the vessel, and threw overboard the deck load, 122,000 ft., and with the assistance of others floated the schooner, and brought her into port with her remaining cargo. They also afterwards rafted and saved 40,000 feet of the lumber jettisoned, about 60,000 more being saved by others. The schooner and remaining cargo saved were of the value of \$14,000. Held, that libelants' services were of a high order of merit, and the others assisting in the salvage not being before the court, and the amounts shown them not being shown, that libelants would be allowed for the services in saving the vessel and cargo on board \$1,000; that they would further be allowed one-third the reasonable value of the lumber rafted and salvaged by them subsequently. The Thomas L. James, 115 Fed. Rep. (U. S.) 568.



DEVOTED TO NAVIGATION, COMMERCE, ENGINEERING
AND SCIENCE.
ESTABLISHED 1878.

PUBLISHED EVERY THURSDAY BY
THE MARINE RECORD PUBLISHING CO.
Incorporated.

C. E. RUSKIN.....Manager
CAPT. JOHN SWAINSON.....Editor

CLEVELAND, CHICAGO.
Vestern Reserve Building. Royal Insurance Building.

SUBSCRIPTION.
One copy, one year, postage paid.....\$2.00
One copy, one year, to foreign countries.....\$3.00
Invariably in advance.

ADVERTISING.
Rates given on application.

All communications should be addressed to the Cleveland
office,

THE MARINE RECORD PUBLISHING CO.
Western Reserve Building, Cleveland, O.

Entered at Cleveland Postoffice as second-class mail matter.

No attention is paid to anonymous communications, but
the wishes of contributors as to the use of their names
will be scrupulously regarded.

CLEVELAND, O., JULY 31, 1902.

TO STAND BY AFTER COLLIDING.

The serious collision which took place on Lake Huron a few days ago, mention of which is made in another column of this issue of the RECORD, brings forcibly to mind the duty of vessels to stand by after colliding with each other.

In the case in question, one of the vessels foundered within a few minutes after the collision, thus giving the crew but scant time to leave the sinking craft while the other proceeded on her course without seeking to render assistance, exchange names, or to concern or identify herself with the casualty in any manner.

Both steamers were loaded and proceeding in opposite directions during a dense, low-hanging fog, and the impact must have been of considerable force to so completely open up the one boat as to cause her to founder almost immediately. Of this feature of the case, however, we have nothing to say until the evidence on both sides is made public, it is the incriminatory act of the steamer still afloat with which we have now to comment upon.

One of the most lubberly and cowardly acts which the seaman can imagine, is to wilfully desert others in distress and in need of assistance which could possibly be rendered, and as if to further impress this paramount duty on the memories of those in charge of vessels, a special act of Congress has been enacted which deals with the subject as follows:

"In every case of collision between two vessels it shall be the duty of the master or person in charge of each vessel if, and so far as he can do so, without serious danger to his own vessel, crew and passengers (if any) to stay by the other vessel until he has ascertained that she has no need of further assistance, and to render to the other vessel, her master, crew and passengers, such assistance as may be practicable and as may be necessary in order to save them from the danger caused by the collision; and also to give to the master or person in charge of the other vessel the name of his own vessel and her port of registry, or the port or place to which she belongs, and also the names of the ports and places from which and to which she is bound. If he fails so to do, and no reasonable cause for such failure is shown, the collision shall, in the absence of proof to the contrary, be deemed to have been caused by his wrongful act, neglect, or default.

"Every master or person in charge of a United States vessel who fails, without reasonable cause, to render such assistance, or give such information as aforesaid, shall be deemed guilty of a misdemeanor, and shall be liable to a penalty of one thousand dollars, or imprisonment for a

term not exceeding two years; and for the above sum the vessel shall be liable and may be seized and proceeded against by process in any district court of the United States by any person; one half of such sum to be payable to the informer and the other half to the United States."

Unfortunately, it is too often the case that there is a feeling evinced at the moment of a collision or other similar trouble to get out of the vicinity and surroundings at the earliest possible moment. This action may be commendable, up to the point of ascertaining the extent of damages, but under very rare circumstances is it advisable, seamanlike or in fact legal to make an attempt to leave the scene of the casualty, as if the one vessel is not in need of immediate assistance, the other may be, hence, the running away part of it is senseless, and may mean the sacrifice of property and possibly lives.

The law of standing by to render assistance is universally known and invariably observed, yet, the exceptional cases occur with seeming regularity wherein every thought of duty to ship, owners and humanity is thrown to the winds, and the sole attention is directed to getting and keeping clear of the casualty spot, irrespective of the condition in which the other vessel may find herself. It is of course one thing to be caught in such a position and another to simply talk about these occurrences, but it does seem as if the duty of standing by in every case of collision should be firmly embedded in the minds of those entrusted with the handling of floating property, and to bring this about a well-advised and moderate punishment seems to be an occasional essential, if only and principally as a warning lesson to others who may find themselves similarly placed.

THE FUTURE AMERICAN SEAMAN.

Whether it is the continued purchase of foreign built fleets, a subsidy, tonnage bounty, or the revocation of existing treaties, it is safe to assume that the United States will have in the very near future a mercantile marine commensurate with the importance of the nation as a maritime power.

The national navy is steadily progressing in the estimation of the family of nations as well as ourselves, but its reason of being will only be partially fulfilled until the mercantile navy is of relative strength and importance to the country.

In this connection it is not too early for some departure being taken looking towards the best means of furnishing an adequate supply of competent men to man both branches of the service. The days of marlinspike and tar boiling, when it took men a series of years to learn to hand, reef and steer, have passed away, and such training is now entirely unnecessary, at the same time, there is a course of disciplinary service which must be gone through to teach the novice how to handle himself properly and to know the use of the things around him.

The main question in keeping the training supply well in advance of the country's requirements, is to secure the proper element of brawn, sinew, physique and character, these being the original requirements, and the last mentioned feature given due prominence in the selection, the training period, presumably at the expense of the government, directly or indirectly, and, or, both, as being fitted for the navy or mercantile marine, would not then be wasted or turned into other channels. Even with the most careful selection there is every chance of getting some sweet scented characters and temperaments among those shipped for training, or, if the full volume of such is not apparent at the moment, it is all there to be developed, and, it is a good thing to be there if the development is bent to the rules of the service, certainly no weakly, puny, mamby-pamby stuff is wanted to make sailors of, and least of all, should any element of natural depravity be introduced into the service.

On this particular view we are at one with the Army and Navy Journal, which quotes in a recent issue the mistaken ideas of the functions of the naval service prevailing among some persons and illustrates the feature in a case which cropped out recently in New York. It appears that a young man of respectable family was detected in crooked transactions in finance and placed under arrest. Thereupon his parents and their lawyer proposed to him that if he will enlist in the navy they will see that he is not prosecuted for his crimes; in other words they

are willing to compound a felony, and to do so are perfectly ready to connive at the enlistment of a dishonest and otherwise unfit man in the naval service. Of course their plan would fail, for no such man as the one in this case would be accepted as a naval recruit, but the very attempt at such a thing is outrageous and insulting. The navy is not a reformatory nor a penal institution for the treatment of the depraved and criminal, yet the notion prevails in some circles that it may legitimately be used as a dumping ground for worthless and vicious young men who cannot be kept under proper control. A law making it a penal offense to connive at the enlistment or shipment of a criminal in the naval service would be a thoroughly wholesome measure.

THE Bureau of Statistics of the Treasury Department has given out the regular monthly statement of the foreign trade of the United States for June, and for the fiscal year ending June 30. The comparisons with the foreign trade of 1901 show a falling away of \$105,731,584 from the total of exports in that year, but a relative increase of \$79,739,143 in the value of imports for the same period. The exports of merchandise for the year sum up \$1,382,033,407, the largest on record after that of 1900 and of 1901. Imports for the year aggregate \$902,911,308, the excess of export being \$479,122,099.

THE CONSOLIDATED LAKE SUPERIOR CO.

The following, specially prepared for the Bulletin of the American Iron and Steel Association, is a correct statement concerning the Clergue enterprises at the Sault:

The Consolidated Lake Superior Co., which conducts large operations on both sides of the St. Mary's river, located principally at the town of Sault Ste. Marie, Ont., is chiefly a Philadelphia enterprise, having been organized by Philadelphians, and the larger part of its capital having been supplied by Philadelphia capitalists. The general offices of the company are in the North American building in Philadelphia, where all the financial operations of the company are centered. The various industrial operations controlled by it are directed from the offices at Sault Ste. Marie, Ont. The Consolidated Lake Superior Co. has an authorized capital of \$35,000,000 7 per cent. preferred stock, and \$82,000,000 common stock, and the operations thus far undertaken represent an actual expenditure of about \$25,000,000. The company is the parent organization, which owns the stock of a number of subsidiary corporations, by which the various industrial operations are conducted. Among these subsidiary interests are the following:

(1.) Lake Superior Power Co., which owns lands and water rights at Sault Ste. Marie, Ont., with power canal which yields about 20,000 horse-power, this being supplemented by a second canal on the Canadian side soon to be constructed; (2.) the Michigan Lake Superior Power Co., which owns the water power rights on the Michigan side, and is constructing a canal which will yield over 40,000 horse-power, and which will be complete and in operation during the present year; (3.) the Sault Ste. Marie Pulp & Paper Co., which operates a ground wood pulp mill capable of producing 100 tons a day of pulp, and also a sulphite mill of about 60 tons a day, both of which are on the Canadian side, and operated by power from the Canadian canal; (4.) the Tagona Water & Light Co., which supplies water and light to the town of Sault Ste. Marie, Ont.; (5.) the Algoma Steel Co., Ltd., which operates a Bessemer steel plant and rolling mill; (6.) the Ontario Lake Superior Co., which, while controlled by the Consolidated Lake Superior Co., is a corporation that owns and controls a number of subsidiary interests on the Canadian side, among them the Algoma Central & Hudson Bay Railway, which is now under construction northward from Sault Ste. Marie to the Helen and Josephine mines in the Michipicoten District, Ontario; and the Algoma Commercial Co., which conducts extensive land, timber and mineral operations upon the lands granted by the Canadian government for constructing the road.

Mining operations are being conducted upon an extensive scale at the Helen iron ore mine, which is located about 12 miles from Michipicoten harbor, and the ore is carried in the company's boats to the lower lake ports. In the vicinity of Sudbury extensive mining operations are conducted in the nickel and copper deposits. Smelters have been erected for the treatment of portions of the ore at the mines, while part of the ferro-nickel ore is roasted at the works at Sault Ste. Marie, Ont., and made into briquettes, which are subsequently smelted into ferro-nickel—a pig iron containing a high percentage of nickel. The steel rail mill, which rolled its first turn on May 5, is now running regularly, and is rapidly reaching its full capacity of between 500 and 600 tons per day. The officers of the Consolidated Lake Superior Co. are: President, E. V. Douglas; vice president and general manager, F. H. Clergue; vice president and treasurer, T. C. Search; vice president, F. S. Lewis; vice president, E. C. Lee; secretary, W. P. Douglas; assistant secretary and assistant to president, Edward H. Sanborn.

NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—MICHIGAN.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C. July 24, 1902.

PORTAGE RIVER PIERHEAD LIGHT-STATION.—Notice is hereby given that, on or about August 1, 1902, a bell to be struck by machinery, during thick or foggy weather, a single blow every 10 seconds, will be established in the bell tower, recently erected at this station, on the southerly end of the pier forming the southerly prolongation of the easterly side of the cut from Keweenaw Bay into Portage river.

The bell tower is a white, two-story, skeleton, frame structure, with the bell hung from its upper part and surrounded by a sound deflector, located near the mast from which the light is shown.

By order of the Light-House Board.

GEORGE C. REMEY,
Rear Admiral, U. S. Navy, Chairman.

DOMINION OF CANADA.

All bearings, unless otherwise noted, are magnetic and are given from seaward, miles are nautical miles, heights are above high water, and all depths are at mean low water.

LAKE HURON—KINCARDINE—LIGHT-HOUSE ON NORTH PIER BURNED DOWN.—The front range light-house on the north pier, 1,185 feet N. 70° W. from the main light, Kincardine, was burned down on the 9th July, 1902.

A fixed red light will be shown temporarily from a lantern hoisted on a pole at the same place. The height of the pole is 28 feet.

RIVER ST. MARY—RAINS DOCK GAS BUOY.—On or about 15th July, 1902, a gas buoy, painted red, with Rains Dock No. 20 in white, and showing a fixed red light during periods of 10 seconds separated by eclipses of 10 seconds' duration, will be established by the United States Government, in 22 feet of water, in place of the red spar buoy, on the easterly edge of the cut, and about midway between Johnsons point and Rains island shoal float lights, at the middle of the turn from the new cut into Dark Hole passage, River St. Mary.

CHART, EAST SIDE OF LAKE HURON—FROM CHANTRY ISLAND TO COVE ISLAND.—A chart, numbered 3,257, of the eastern part of Lake Huron, taking in the coast from Chantry island to Cove Island, (including a plan of Southampton harbor), prepared from Hydrographic surveys made by this Department, has just been published by the British Admiralty.

LAKE SUPERIOR—ONTONAGAN HARBOR—SHOAL REPORTED.—Capt. Cummings, commanding the U. S. light-house tender Marigold, reports the existence of a shoal, with 10 feet of water over it, about 200 feet inside of Ontonagan pierhead light, midway between the piers.

ONTARIO—LAKE ERIE—PORT COLBORNE—CHANGE IN COLOR OF LIGHT.—A light is maintained by the contractors on the outer end of the new breakwater now under construction at Port Colborne. This light has heretofore been a fixed white light, but on and after the 20th July, 1902, it will be changed in color to red. The light is a temporary one and no particulars respecting its location, &c., have yet been received.

F. GOURDEAU,
Deputy Minister.

DEPARTMENT OF MARINE AND FISHERIES,
OTTAWA, CANADA, 19th July, 1902.

Pilots, masters and others interested are earnestly requested to send information of dangers, changes in aids to navigation, notice of new shoals or channels, errors in publications, or any other facts affecting the navigation of Canadian waters to the Chief Engineer, Department of Marine and Fisheries, Ottawa, Canada. Such communications can be mailed free of Canadian postage.

A NOVEL TRIP.

In a canoe from Chicago to New York, a distance of 1,200 miles, is a novel trip that is being taken by two Chicago youths, who reached Cleveland in the frail craft last evening. The young lads are Earl Parsons and James Wallace, each nineteen years of age, and members of the Chicago Naval Reserves. The young men started out in their boat July 12 with the intention of reaching New York in sixty days, but they expect to complete their journey in a much shorter period. They went from Chicago to St. Joseph in Lake Michigan and their route to Toledo was over the St. Joseph and Maumee rivers with a sixty mile portage between the two rivers. On leaving Toledo they paddled out into Lake Erie and started for Buffalo. They made a stop at Sandusky, leaving there last Friday night. After reaching Buffalo the lads will paddle to Albany over the Erie canal and will proceed down the Hudson river to New York. So far they have paddled 535 miles. Their canoe is but thirteen feet long and weighs forty-five pounds. It is equipped with a sail, but so far they have had little opportunity to use it. So far they have had no exciting experiences and say that they are greatly enjoying their trip. They left here for Buffalo on Sunday.

SUPPORT FROM LUMBER SHOVERS.

It now appears that the Lumber Carriers' Association is to receive support from lumber shovers at both Lake Superior and Lake Michigan ports in the former's fight to maintain the \$2.50 per thousand rate on cargoes from Lake Superior to Chicago. Shippers are refusing to pay the rate willingly, and some of the vessels in the trade, not members of the Carriers' Association, are accused of making concessions in the carrying charges. It is claimed that these owners are well known and their free lance methods are to be cut short if within the power of the Lake Lumber Carriers' and the Longshoremen's Association to bring it about. Virtually all the boats taking lumber at cut rates have no contracts with the lumber loaders and unloaders' unions, and the recent advance in wages asked by both of these organizations, in cases where vessel owners are not contracted, is taken to indicate that they are working hand in glove with the carriers' association. The longshoremen have an interest in keeping up the lake rates, for if they go to pieces their wages must necessarily be reduced. It is stated that if certain vessel owners outside of the ring continue to cut rates they will soon come to grief.

LAKE FREIGHTS.

The iron ore freight market is unchanged at the season's opening rates, and chartering is fairly brisk, with a heavy movement from the mines. There has been detention experienced all season at both loading and discharging ports, sometimes more marked at one end than the other, at the same time, demurrage is not even thought of, much less talked about, and charters are placed on the tacit understanding that no unnecessary or unusual delay will be met with.

There is no change in the freight rates on coal, brisk shipments of bituminous from Ohio ports now obtains, with fair dispatch, and these terms are expected to continue. Speculation regarding the resumption of mining and the shipment of lake of anthracite, is tabooed, as there is no guessing when hard coal will become a factor again in the freight market. It is certain that there will be a shortage of coal at the upper lake ports when the season of navigation closes, and that a large amount of coal will have to be sent forward by rail during the winter months. Very little hard coal has been shipped up the lakes, and stocks are low all around.

The market is absolutely lifeless and the breaking of the Chicago corner on corn has brought about only a slump of $\frac{1}{8}$ cent, the rate now being 1 cent on corn, $\frac{1}{8}$ cent on wheat to Buffalo or Georgian Bay, with tonnage galore. There is not even a quotation from the head of the lakes nor is there likely to be much of a movement until about the middle of September. It can be said, however, that receipts are now running much heavier than they have for some time, and with the deals in both corn and oats out of the way with the close of the month, it is believed the markets will soon get into line for shipment.

The lumber situation had been heralded as very much improved and all regular tonnage being chartered at the \$2.50 rate per M feet, from the head of the lakes. It is quite evident, however, that the shipments are still light and the quoted rate maintained at the expense of some anxiety, also with the aid of the lumber shovers at loading and discharging ports. There is some satisfaction in knowing that a large quantity of lumber must be sent forward by lake before the close of navigation, and, perhaps the increased freight on the last couple of cargoes may pull up the lumber carriers' earnings for the season.

LOST AFLOAT.

The old story is still going the rounds of the merchant marine service wherein it is related that a certain captain took nine months to reach the mouth of the river Ganges, only to turn back and pronounce his quest unsuccessful. This experience is brought to mind by the recently announced arrival of the U. S. S. Mohican, at Dutch Harbor, Alaska, in desperate straits for lack of fuel and provisions, recalls a similar experience which befell the Iroquois during the cruise of that vessel from Honolulu to the Gilbert Islands, via Samoa. In the attempt to make the voyage under sail alone, the Iroquois lost her reckoning, and for more than three months her whereabouts were entirely unknown. When the vessel finally appeared, it was at Port Townsend, Wash., instead of on the equator among the islands of the Gilbert group. It appeared, on investigation, that during this remarkable experience the ship was unable to obtain a sight of the sun for eighty-five consecutive days, with the result that her navigator was completely befogged as to his latitude or longitude, and the ship drifted hither and yon, first in one direction and then in another, the coal supply of the Iroquois not being sufficient to encourage the attempt to steam to its destination. The weather grew colder and colder, the fuel supply grew scantier each day, and the supply of drinking water dependent as it was upon steam, began to fail, and this, with the diminution of food, made the situation decidedly uncomfortable. When at length the harbor of Port Townsend was made, the snowflakes were flying and the shivering crew of the Iroquois was about to abandon all hope of a rescue. Comdr. Joshua Bishop, U. S. N. (now retired), was in command of the Iroquois, during that memorable cruise.

DULUTH-SUPERIOR.

CONTINUED FROM PAGE 7.

I learn from Seattle, Wash., that the Weyerhouse timber syndicate, of Wisconsin, said to be the largest timber concern in the world, has five cruisers at work surveying and selecting the best tracts of yellow pine they can find at the head waters of the John Day's middle fork in Grant county, Oregon. These cruisers are armed with all kinds of forest reserve scrip, which they use to advantage on the magnificent pine tracts yet untouched in that country. They take only the best timber, but are willing to use scrip for only forty acres if they find a tract that small with no good surrounding pine. They are now in the vicinity of Austin on the middle fork, and if no contest through mineral claims arises, the Weyerhouse syndicate will have become possessed of thousands of acres of splendid forest when their cruisers have finished work.

Capt. James Taylor, master of the tug Abbott, of the Union Towing & Wrecking Co., who fired two shots at Engineer Wilson, of the independent tug Raber Sunday night, has been released on \$3,000 bail. The wounded man is hovering between life and death. Until the trouble between the union and non-union tugmen shall be settled special policemen will accompany all tugs belonging to the Union Wrecking & Towing Co., whenever they go out after tows, in the hope of preventing further bloodshed. Capt. Taylor declared that men on the independent tug began throwing stones at his boat, and that he warned them to desist. When they refused he drew his revolver without aiming at anyone in particular and fired. Wilson had taken no part in the affair, and had just come up from the engine room when the bullet laid him low. There is intense feeling in marine circles here and everyone is made to preserve peace.

Vessels trading to the head of the lakes are complaining on account of desertions of crews. At this time of the year the harvest fields of the northwest are offering a big attraction to the sailors. Better wages and better hours are the inducements, and several captains have reported that parts of their crew have deserted and headed for the harvest fields. The greatest difficulty is that help for the boats is scarce. A few of the masters have taken the precaution while in port not to allow the crew ashore, and in this way they have kept their deck hands. Desertions at this time of the year have begun to be an annual affair. The deck hands can't be overly blamed for skipping out either, when it is to better themselves. The only recourse is to have some sort of an agreement which will be binding on both sides for the round trip. The deckers have a hard old time anyway, as they are the cheapest and commonest labor employed in lake service.

It is now estimated that there is only 2,500,000 bushels of wheat in stock and it will be August 20th before the new crop will begin to arrive. "There will not be much more of the present wheat stocks, nor of the prospective receipt of old wheat, to go forward, as a large proportion of the grain will be required for milling purposes," said a grain man this week. "Stocks of wheat are low here at present, and from advices it seems certain that the prospective receipts of old wheat will not be of such volume as to warrant the belief that there will be much of a surplus to go forward." During the past two weeks the Canadian-Atlantic Transit Co. has chartered grain for export to the amount of 500,000 bushels, and this seems to be about all there was doing, though Duluth-Buffalo line boats are receiving small lots of grain right along. It is estimated that from 20,000 to 25,000 harvest hands will be required to handle the Manitoba crop this year, and the Canadian road is arranging to bring laborers from England. Exceptionally cheap passenger rates are being made in connection with the Allan and Beaver lines.

In a recent interview regarding the large steel steamers for which orders have just been placed with the American Ship Building Co., for the Superior Steamship Co., Mr. G. A. Tomlinson the managing owner said: "I requested the American Ship Building Co. to, if possible, have the vessels built at the West Superior yard. It is improbable, however, that they can be built here as there is a scarcity of berths at the yard. I am not prepared to announce the name of the new boats yet, but it is the policy of the company to have names begin with 'S' and end with 'a,' as in Sonora, the name of the first boat." The new craft will show an important departure in many respects from the other 400-footers. Twelve hatches is the standard plan for the present larger class of freight steamers, but the new boats will be provided with twenty-four hatches. The large number of hatchways will make it possible to obtain greater dispatch in unloading cargoes of ore, grain or coal. In unloading ore it is expected that clamshells will do all the work without the assistance of shovellers. As dispatch is the one great thing to be attained in lake transportation, to as great an extent as possible, the plans of the new steamers have been made with a view of getting it in as large measure as possible. The system of internal construction of the new craft will also be a departure on lake boats. One of the principal ideas in this connection is to do away with stringers and stanchions that interfere with the operation of the clamshells and other hoisting machinery.



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LLOYD'S REGISTER QUARTERLY RETURNS.

From the returns compiled by Lloyd's Register of Shipping, it appears that, excluding warships, there were 406 vessels of 1,129,582 tons gross under construction in the United Kingdom at the close of the quarter ended 30th June, 1902. The present returns shows a reduction in the tonnage under construction of about 111,000 tons as compared with the figures for last quarter, and of about 284,000 tons as compared with the unprecedentedly high total which was reached in September last. Of the vessels under construction in the United Kingdom at the end of June, 346 of 883,958 tons are under the supervision of the surveyors of Lloyd's Register with a view to classification by this society. In addition, 75 vessels of 281,544 tons are building abroad with a view to classification. The total building at the present time under the supervision of Lloyd's Register is, thus, 421 vessels of 1,165,502 tons.

	No.	Gross tons.
Building in United Kingdom for home account, for sale, etc.	298	785,309
Building in United Kingdom for foreign and colonial account	48	98,649
Building abroad for United Kingdom owners	2	660
Building abroad for foreign account	73	280,884

Total building on 30th June for classification in Lloyd's Register Book. 421 1,165,502

The following table shows the vessels under construction in the United Kingdom classified according to gross tonnage:

Tonnage	No. Steam	No. Sail	Tonnage	No. Steam	No. Sail
Under 50 tons*	—	4	4,000 to 4,999 tons	38	—
50 to 99 tons*	14	1	5,000 to 5,999 tons	11	—
100 to 199 tons	48	11	6,000 to 6,999 tons	17	—
200 to 499 tons	57	—	7,000 to 7,999 tons	14	—
500 to 999 tons	28	—	8,000 to 8,999 tons	5	—
1,000 to 1,999 tons	37	2	9,000 to 9,999 tons	7	—
2,000 to 2,999 tons	33	7	10,000 tons & above	14	—
3,000 to 3,999 tons	58	—			
			Total	381	25

*Vessels of less than 100 tons are not included in Lloyd's Register Shipbuilding returns unless they are intended to be classed in the Society's Register Book.

Warships under construction number 57 of 327,140 tons displacement.

DULUTH LEADS LAKE PORTS.

According to the annual report of the Duluth Collector of Customs, which has just been completed, there are more vessels enrolled at Duluth than any other port on the lakes.

There are at the present time 350 craft enrolled here. The report, which embraces the fiscal year ended June 30, shows that up to the first of July there were 297 vessels enrolled, and since that time the number has been increased by the addition of fifty-three, twenty-eight of which are in the Barker fleet, recently brought in from the Marquette district, and twenty-three in the Minnesota Steamship Co.'s fleet, brought in from the Ashtabula district.

The total tonnage represented by these boats up to the first of July was 403,937. At the ending of the year previous the total tonnage was 371,776, and the number of vessels were 287. Of the vessels enrolled in Duluth up to July 1, twenty-five are sailing vessels, with a total tonnage of 66,027 tons, and 185 are steam vessels, with a total tonnage of 302,882. There are eighty-six barges with a total tonnage of 40,758.

The biggest gains to the Duluth tonnage occurred the first week in July, when the Barker and Minnesota Steamship Co. fleets were enrolled. The former had previously been enrolled at Duluth, but was a few years ago transferred to Superior, which is a sub-port in the Marquette district. The tonnage, however, is principally for harbor use such as dredges, scows and tow boats.

EARTHQUAKES—ERUPTIONS—EXPLOSIONS.

In our issue of July 24, the RECORD asked, "What relation or connection, if any, has the backward, showery summer, with the recent geological disturbances in the West Indies?" To this query the Rev. Father Oldenbach, S. J., of St. Ignatius College, Cleveland, an eminent meteorologist replies at some length in the Cleveland World, and, in brief, establishes a direct and continuous relation between the earthquake, eruptions, and explosions at Martinique with the prevailing atmospheric conditions since experienced over a large portion of the United States.

In this connection we are in receipt of the following letter from an esteemed contributor:

CONNOR, Pa., July 25, 1902.

Editor THE MARINE RECORD:

Having been written to, and asked as to whether explosions in mines, can be traced with any certainty, as to the real cause, I think there can be several assigned. In cutting coal methane is constantly set free from the coal, and from crevices, where it had been confined, it seems to be so very nearly of the same substance, as natural gas, that to point out any difference would be a difficult task. There is a probability that electric and magnetic forces at times cause a greater volume to be ejected from the coal, and from the crevices in the vein. The energy exhibited at Pelee, Martinique, in varying degrees affected the entire earth.

If this supposition should prove to be correct, have we instruments that will record, so that we may know under what conditions the great danger is encountered?

Doubtless many of the people in Johnstown recollect, prior to the flood, of the very low natural gas pressure, the valves were opened—some time at night the pressure and flow had so increased as to scorch and set fire to a number of places before being discovered.

I think there is good reason to believe that these conditions were brought about by electric and magnetic forces.

If this be true, we must invent, if we do not now have, an instrument that can, and will, act as a trusty sentinel, to apprise and warn the miner of the approach of this silent and deadly enemy. My object is to arouse thought and cause careful investigation.

J. R. HECKMAN.

Relative to the spasmodic and abnormal rain falls, Father Oldenbach says:

"People have ascribed to the eruption of Mount Pelee the present heavy rain fall. This eruption is now being investigated. It may be years before all the results can be obtained. Articles are still appearing in scientific magazines upon the eruption of Krakatoa, and all questions concerning this eruption have not been settled yet. I suppose ten years from now or perhaps less a theory may be established to account for this eruption and with this and the results of the other investigations of this phenomena before us we may be able to determine whether this eruption had any bearing on the rain fall of this year. Until that time a scientist would be foolish to venture an opinion on this. You see science moves more slowly than the newspapers."

On the other side of the question, and as bearing upon the submarine geological effect as differing from the atmospheric conditions, soundings are being offered to show that the bed of the Gulf of Mexico has come nearer the water surface in places, by sixty to seventy fathoms, or soundings taken in twenty fathoms were eighty, is shown on a chart corrected for and by the latest and best surveys. The periodic rise and fall of the tides on the eastern seaboard, is also said to have been affected inasmuch as it does not rise so high as previously by from three to ten feet, and in the interior, land has been elevated as much as four feet. The inference drawn from these indications is that the volcanic eruptions in the West Indies are responsible for the phenomena. Prof. Heilprin, who has been investigating the causes and consequences of the eruptions says: "What great disturbances, if any, have taken place in the sea bottom as a result of the recent occurrences, is a question that will take time to determine,

but there is evidence already that some change has taken place west of Martinique, between the depths of 1,500 and 2,000 fathoms."

The Branch Hydrographic Office, Navy Department, at New Orleans says of the British captain's story that the point where the soundings were taken is too far out for the silt of the Mississippi to have been deposited in such quantity, and the fact that the sounding showed gravel is regarded as proof that the mud of the river has had no effect on the bed of the gulf at that point.

That the recent volcanic eruption at Martinique has shown an effect thousands of miles up in the air and thousands of fathoms under the sea surface is subject to further scientific investigations, though it may be said that the plausible theories now advanced are being pretty generally taken aboard by the average reader.

BARGE TOWING TRADE.

This system of coal transport originated in Rotterdam, and has received its chief development in the coal trade between the east coast of England and the North Sea and Baltic.

Sea lighters of 2,000 tons are under construction; two such lighters of 1,200 tons each may, in fair weather, be towed by one tug, and we may look forward to a considerable extension of this trade.

On the Sea of Azof, which is nowhere more than 30 feet deep, the grain of Southern Russia is brought to the ocean steamers by self-propelling steam lighters, and still handled in a primitive way which the very low wages has allowed to survive. Similar relations prevail on the Lower Danube, where lighters up to 1,000 tons carry grain 300 miles to the sea-going steamers at Braila, Galatz, and Sulina; at the latter port 450,000 tons of grain are loaded annually. These boats do not travel beyond their roadsteads.

Down the Rhone, between Lyons, Arles, and by sea to Marseilles, the lighter trade was inaugurated by the Compagnie Bonnardel, of Lyons, in 1852, when there was only 0.4 metre of water in the Rhone, and a dangerous bar at its mouth, while even steamships of 1,200 horse-power could make no headway in the rapids. Paddle steamers, up to 155 meters in length, were first used on the river, and lighters towed by paddle-boats on the sea, a distance of 25 miles. Arles, at first the intermediate starting point for the sea lighters, was, in 1871, replaced by St. Louis, near the mouth of the Rhone. The concern, now known as the Compagnie Generale de Navigation, Havre-Paris-Lyon-Marseille, possesses 43 sea lighters of 800 tons, lost 4 of them up to 1871, and none since, and trades at present also with Toulon, Cette, and Aigues-Mortes. Several other companies flourished for a time only. The lighter trade on the Weser and Elbe received a great impetus by the Kaiser Wilhelm canal.

By the end of 1900 the two Hansa towns of Bremen and Hamburg had together a fleet of 144 sea lighters, aggregating 77,250 tons, at their disposal, the property of various companies, not of the States. That fairly quick transport is possible by sea and canals is shown by the fact that a cargo steamer arrived at Dortmund on April 13, with goods which had been landed at Stettin on April 7; the sea distances alone amounts to 750 kilometres (466 miles).—Engineering.

LATEST MARINE PATENTS.

705,046.—Rotary propeller-fan and propeller for ships. Samuel C. Davidson, Belfast, Ireland.

705,050.—Compass-light. Oscar E. Eaton, Boston, and Frank C. Burrill, Hull, Mass.

705,188.—Anti-capsizing device for boats. Frederick W. Zimer, London, England.

705,342.—Construction of ships. Richard T. Green, Everett, Mass.

705,348.—Oscillating propeller. Christopher Hayes, June, New South Wales, Australia.

705,397.—Paddle-wheel, John J. Graham, Imperial, Pa.

705,417.—Governor for propeller-shafts. William R. May, Newton, Mass.

THE IRON AND STEEL INDUSTRY.

The phenomenal development of the iron and steel industry of the United States led the British Iron Trade Association to appoint a commission last year to inquire into the industrial conditions and competition of the United States. The report of that commission which has been recently presented is briefly reviewed by the London "Commercial Intelligence," a copy of which has just reached the Treasury Bureau of Statistics. It says:

"It is, indeed, a marvelous, and, to the British manufacturer and trader, in some respects a most discouraging story. The British Iron Trade Commission gives details of the mineral resources of the United States as affecting that fundamental industry—the manufacture of iron and steel; shows the extraordinary richness of the principal fields of coal, iron ore, and kindred minerals and demonstrate by concrete examples, how the natural inventiveness of the American has enabled him to apply to the operations of production and distribution a wealth of original ideas and methods that are as yet little known in Europe. It is also made manifest how on land, on lake, on river, and on canal, the American people have applied their minds to the solution of the conditions and problems of cheap transport until they have at last attained a level of rates and charges such as we have hardly had any experience of on this side of the Atlantic. It is not, however, to be supposed that the triumphs of the American people in these matters have been achieved without effort. Much testimony is borne to the fact that in the conditions of organization and administration, in their dealings with labor, in the confidence and enterprise with which they have embarked on industrial operations of great magnitude, in the efforts made to adapt themselves to new conditions, in the eagerness with which they have endeavored to create new demands both at home and abroad, and in the care and attention given to the successful cultivation of foreign markets, the American people have labored strenuously for many years, until labor, ingenuity, and enterprise have become their most distinguishing characteristics. When one has appreciated all that the Americans have done for themselves, it is neither natural nor reasonable to grudge them the success which has attended their labors."

"Commercial Intelligence" presents the following picture of the relative growth of the iron and steel industry in the United States and the principal countries of the world.

Production of pig iron in the United States, United Kingdom, Germany, and all other countries, in thousands of gross tons:

Year.	United States.	United Kingdom.	Germany.	All other Countries.
	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons.
1865	832	4,819	760	2,839
1870	1,668	5,964	1,369	2,902
1875	2,024	6,365	1,997	3,510
1880	3,835	7,749	2,685	3,201
1885	4,045	7,415	3,629	4,439
1890	9,203	7,904	4,585	5,738
1895	9,446	7,703	5,379	6,376
1900	13,789	8,960	8,386	9,265
1901	*15,878	7,750	*7,737	9,042

*Iron and Steel Association figures.

Appeal—Error to District Court—Final Judgment—Dismissal of Cross Libel.—A decree of a district court of the United States dismissing a vessel in a collision with another is not a final judgment, and therefore cannot be reviewed by the Supreme Court under the judiciary act of March 3, 1891 (26 St. at L. 826, ch. 517), on the theory that the jurisdiction of the lower court was in issue. *Bowker, vs. United States*, 22 Sup. Ct. Rep. (U. S.) 802.

JAMES SPENCE ROBERTSON.

If JAMES SPENCE ROBERTSON belonging to Dundee, Scotland, who was, it is believed, about 1889 in Tawas City, Michigan, U. S., and who was, it is understood, latterly acting as a Steward on a Lake Steamer running out of Bay City, Michigan, U. S., will communicate with the Subscribers, he will learn something to his advantage.

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Dundee, Scotland.

SHIPBUILDING IN GERMANY.

A work just published in Germany, based on information collected by the Imperial Navy Department, contains some interesting particulars on the subject of the position of the shipbuilding industry in the Fatherland. One of the principal facts established is that the business of building ships in Germany has developed far more rapidly in the last three decades than the owning and working of them. The number of shipyards capable of turning out iron sea-going vessels, and the amount of capital invested in them, from 1870 downwards, is shown in the following table:

1870.....	7 yards with a capital of 4,800,000 marks.
1880.....	18 yards with a capital of 15,300,000 marks.
1890.....	25 yards with a capital of 36,100,000 marks.
1900.....	39 yards with a capital of 66,000,000 marks.

Up to the end of 1900 it is estimated that the capital invested had increased to ninety or ninety-five million marks. This is a gigantic stride to be taken in thirty years, and the Germans are quite justified in boasting that shipbuilding has come to be one of their most important industries. The profit-earning capabilities of the yards fluctuate, as is only natural, according to the amount of capital invested, and other circumstances. Thirteen yards are brought together in a table contained in the work above alluded to (published by Messrs. Schwarz & Halle, Berlin), namely, the Stettin Vulcan, Oderwerke; Neptun, Howaldtswerke, Germania, Flensburg Company, Blohm & Voss, Reiherstieg, Janssen & Schmilinsky, Weser, Bremen Vulcan, Tecklenborg and Seebeck. The average dividends paid by these establishments in the years 1890-1900 were 10.05, 8.29, 7.89, 6.71, 5.55, 5.00, 4.98, 6.59, 6.08, 6.98, and 8.15 per cent. The activity at all these yards has, of course, been gradually increasing with the growth of their internal development and self-dependence, and the policy adopted by the government in building German warships in German yards, and in stipulating in the subvention-contracts, that all mail steamers taking state aid shall also be built at home, has contributed not a little towards the development and prosperity of the shipbuilding trade as a national industry. The value of the work turned out from ten of the largest yards in the years 1871 to 1880 was 6½ million marks, while in the years 1881 to 1890 the value was 88 millions, and in the years 1891 to 1896 about 103 millions. In the seventies, therefore, the annual value of work performed was 6.5 million marks, 8.8 millions in the eighties, and 17 millions in the nineties up to 1896. In 1898, however, work to the value of 84 million marks was executed at twenty-four of the largest establishments, while from eighteen of the principal yards in the years 1896 to 1900 work was turned out to the value of 331 million marks. These statistics had to be compiled before the returns had come in from all the yards (three of the largest being among the omissions), but enough is given to show that with official support and under favoring circumstances, the German shipbuilding trade is increasing in extent and importance.

THE TALE OF A SHIP.

For a number of years the old lake battered hulk of the wooden schooner A. J. Dewey has been lying inside of the Park breakwater at Chicago, about where Washington street would reach if it cut through. Here she lay with her rails and most of her decks gone, and what remained barely above water. Recently the Park Board has begun the filling in of the space between the shore and the breakwater with the heavy blue clay that is taken out of the tunnel now being built under the city.

The old schooner lying quietly, her upper works rotting above water, was not disturbed by the filling until it approached about 100 feet of her, when she began to raise first her bow, and as the filling progressed; gradually the whole of her hull came up, as the ooze and soft mud under her were driven against the breakwater, and now she lies high and dry on the top of the new made ground.

The pathos manifested by seeing this old hulk rising out of the water and getting up on the land lies in this: If she could speak would she not say: "I was built upon the land high and dry, designed to float and perform the functions of a ship until I should either go under the element which floated me, or lie dashed upon the land from which I came. I was not designed or built to be buried by earth, to rot and be eaten by blind worms in a grave, hence I rise from where I was under the water to die high up on the land from which I came, so that it shall never be said that I was buried by dirt. I have too faithfully performed my service to die such an ignoble death; to disappear where man and beast can walk over me and tramp upon my decaying bones."

C. E. KREMER.

NOTES.

In a trial trip on the Tyne the new torpedo boat destroyer *Velox*, built for the British government and which is fitted with turbine engines, attained a mean speed of 33.12 knots an hour.

The plans for the new plant of the Cleveland Pneumatic Tool Co. are about completed, and contracts will be let at an early day for the construction of the buildings. The company has just opened up an office at No. 411 Park Building, Pittsburg, Pa., represented by Chas. L. Nelson, and at No. 34 Lemojne street., Montreal, Canada represented by N. J. Holden & Co.

LIEUT. FOSTER, in charge of the New Orleans branch of the United States hydrographic office, reported to Washington that a recent survey of the Gulf of Mexico near the mouth of the Mississippi river, shows only twenty fathoms of water, where there was sixty fathoms at the time of the previous survey. Lieut. Foster is puzzled over the phenomenon. Many believe that it is caused by volcanic upheavals, the result of the recent earthquakes in the West Indies, while others think it is caused by a deposit of silt from the Mississippi river. As a result of the discovery the government will probably order a new survey of the entire Gulf of Mexico.

THE *Saturday Review* says a denouement followed Professor Thompson's attacks in the *Review* on the validity of the Marconi patents in which the professor said an Italian naval officer named Solari was the real inventor of the wireless telegraph system. It says: "The Official Journal of the patent office July 16, contains a brief notice of a very unusual character. It announces that Guglielmo Marconi, who, September 10, 1901, had filed a patent in his own name for this invention now seeks to amend the application by converting it into an application for a patent for an invention communicated to him from abroad by the Marquis Luigi Solari, of Italy."

NEW ZEALAND pays its men and women over 65 years of age, if their incomes do not exceed \$170 a year, pensions of \$90 a year each. It now has between 9,000 and 10,000 pensioners; to meet whose requirements an annual tax of a little more than a dollar is levied on every man, woman and child in the colony. The law provides only that a pensioner must have been a resident of New Zealand for twenty-five years prior to his application; that he must have spent less than five years in the penitentiary during that time, and that he must not have been in jail more than four months or four times during the twelve months preceding. It provides that his character must be good at the time of application, and that he must have been sober and respectable during the five years preceding that time.

RECENT speculation regarding the origin of the human race, has led to more careful study of some of the earliest known remains, including the so-called "man of spy," the Neanderthal skeleton and the creature—human or semi-human—some of whose bones were discovered several years ago in Java. Two German anatomists, who have given much attention to the subject, are confident that the first-mentioned skeletons must be ascribed to a distinct species of man, which they have named "Homo Neanderthaliensis." The Javanese skeleton, which its discoverer calls "pithecanthropus" (monkey-man), is lower down in the evolutionary scale, and the direct ancestor of both, who may be regarded as the earliest man, must have lived, they think, as far back as the Pliocene period of geological time.—August Success.



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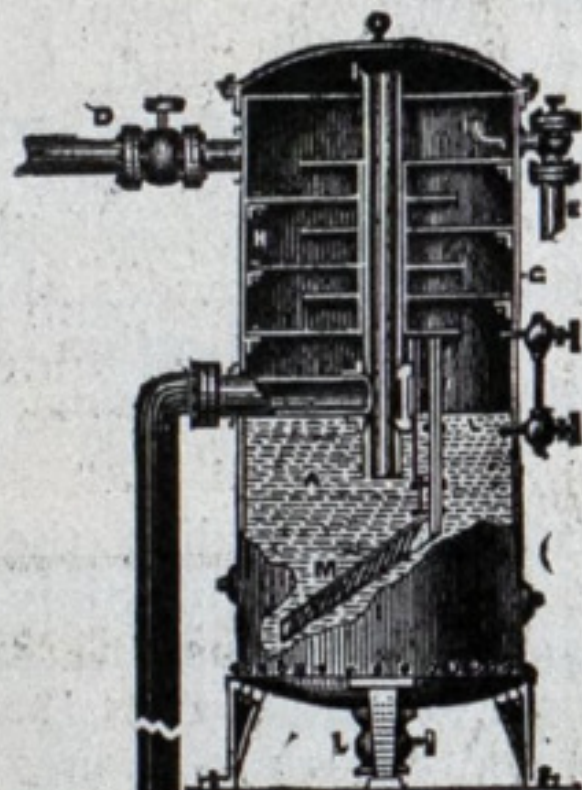
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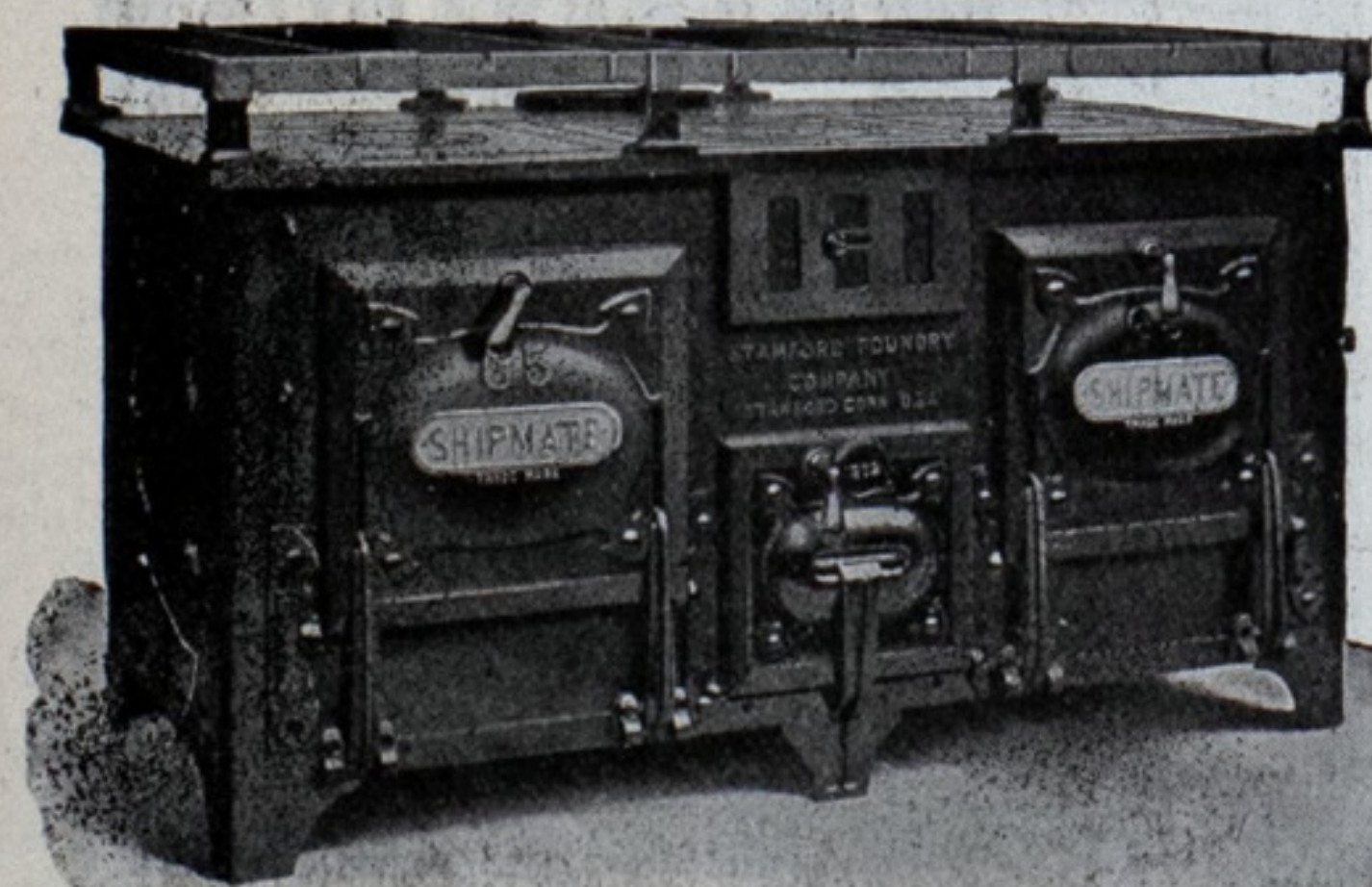
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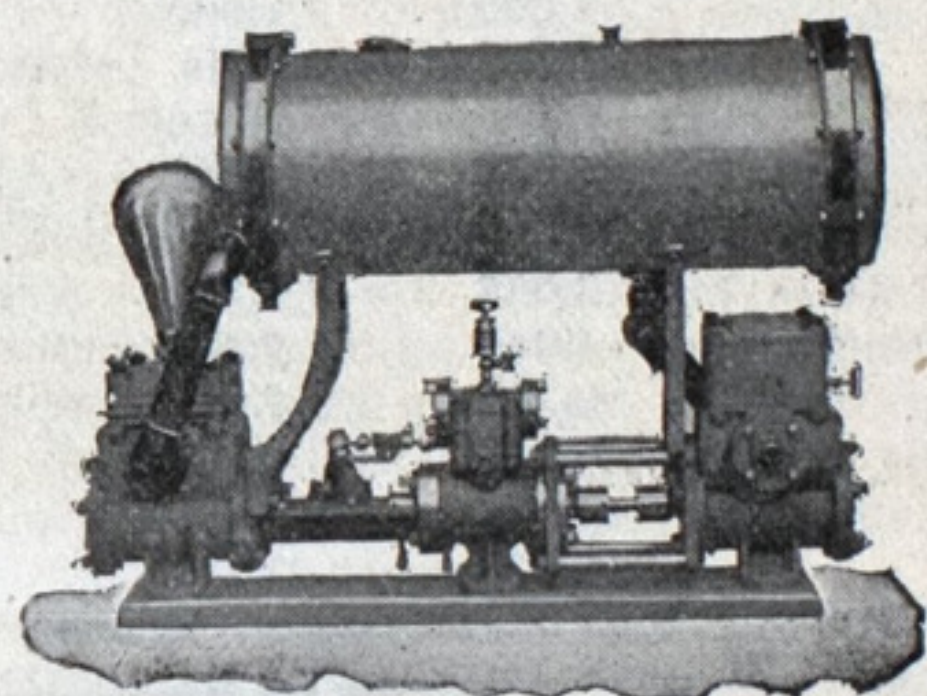


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FLOTSAM, JETSAM AND LAGAN.

Surveyors are at work surveying the Bessemer short line from Five Points, Pa., southwest of Conneaut to Niles, O. The road will be used in conveying ore from Conneaut harbor to the blast furnaces at the southern terminal.

Eight mechanical stokers, of the kind made by the Duluth Stoker Co., Duluth, Minn., and which are in use on several large lake cargo steamers, have been purchased by the Eastern Shipbuilding Co., and will be installed in the first of the big Hill Pacific liners now building at Groton, Conn.

The owners of the steamboats Monmouth and Sandy Hook have placed with the Cramps an order for a steamboat that will be able to make twenty-five knots an hour. The boat is to be ready by Memorial Day of next year. The new boat is designed to make the journey between New York and Sandy Hook in not more than 55 minutes.

It is reiterated that the White Star line has definitely declined to be managed by the Morgan syndicate in any shape until the purchase money for the line is paid. The syndicate has declined to deposit the money until the English lines relinquish their individual management. The tremendous price demanded for the White Star Line may have caused a halt.

During her last trip down the lakes from Marquette with a cargo of ore, the steamer Continental was twice made the object of attack by lightning. Her cabin was the mark for both bolts which struck the ship, and its woodwork was badly shattered, though none of the occupants suffered. Besides the damage to her cabin the steamer had a splintered rail.

The Erie, Pa., fishing fleet of thirty-five tugs are laid up as the result of the announcement of the A. Booth Co. of a reduction of one-half cent on the price of herring and ciscoes. Many of the tugs have been operated on shares and it is the crews of these boats that are affected. The other fishermen, who work on salary, have joined the strike and the tie up is complete.

In the United States Court at Milwaukee last week, Judge Swan held the steamer Falcon responsible for the collision with the barge R. L. Fryer, in the Sault canal, in 1900, and severely censured her captain for violating the rules by running two steamers abreast through the canal. The Falcon and steamer Madagascar were moving through the canal in the same direction when they met the Fryer in

tow of the Kalkaska. The Falcon should have fallen behind the Madagascar, but instead, attempted to pass, with the result that the suction from the vessel threw her into collision with the Fryer. The Falcon is held for damages, and the Madagascar, which was made a co-defendant, was discharged from all liability.

Inspection of the steamer Portage, which collided with the lumber barge Flint, in tow of the steamer Viking, off Grosse Point recently, shows that the vessel is out of line about sixteen inches. Her stem, all main stanchions, stringers and top frames forward are broken. A complete rebuild of the entire forward part of the steamer will be necessary. She has been turned over to the Buffalo Drydock Co.

Government Proposals.

U. S. ENGINEER OFFICE, Buffalo, N. Y., July 23, 1902. Sealed proposals for hire of dredging plant for excavation in Niagara River and Tonawanda Harbor will be received here until 11 A. M., August 22, 1902, and then opened. Information on application. T. W. Symons, Major, Corps of Engineers. 30-34

U. S. ENGINEER OFFICE, Milwaukee, Wis., July 28, 1902. Sealed proposals for dredging at Menominee Harbor and River, Mich., and Green Bay Harbor, Wis., will be received here until 12 noon, standard time, Aug. 15, 1902, and then publicly opened. Information furnished on application. J. G. Warren, Major, Engrs.

U. S. ENGINEER OFFICE, Buffalo, N. Y., July 26, 1902. Sealed proposals for dredging and construction work at Erie Harbor, Pa., will be received here until 11 A. M. August 15, 1902, and then opened. Information on application. T. W. Symons, Major Corps of Engrs.

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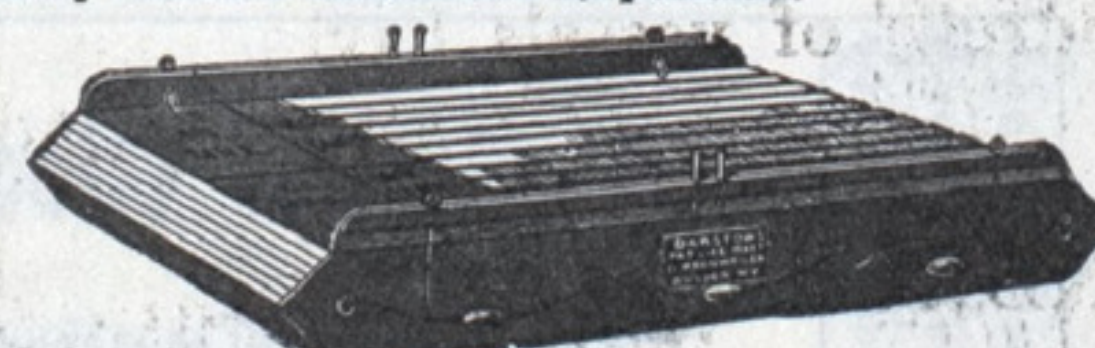
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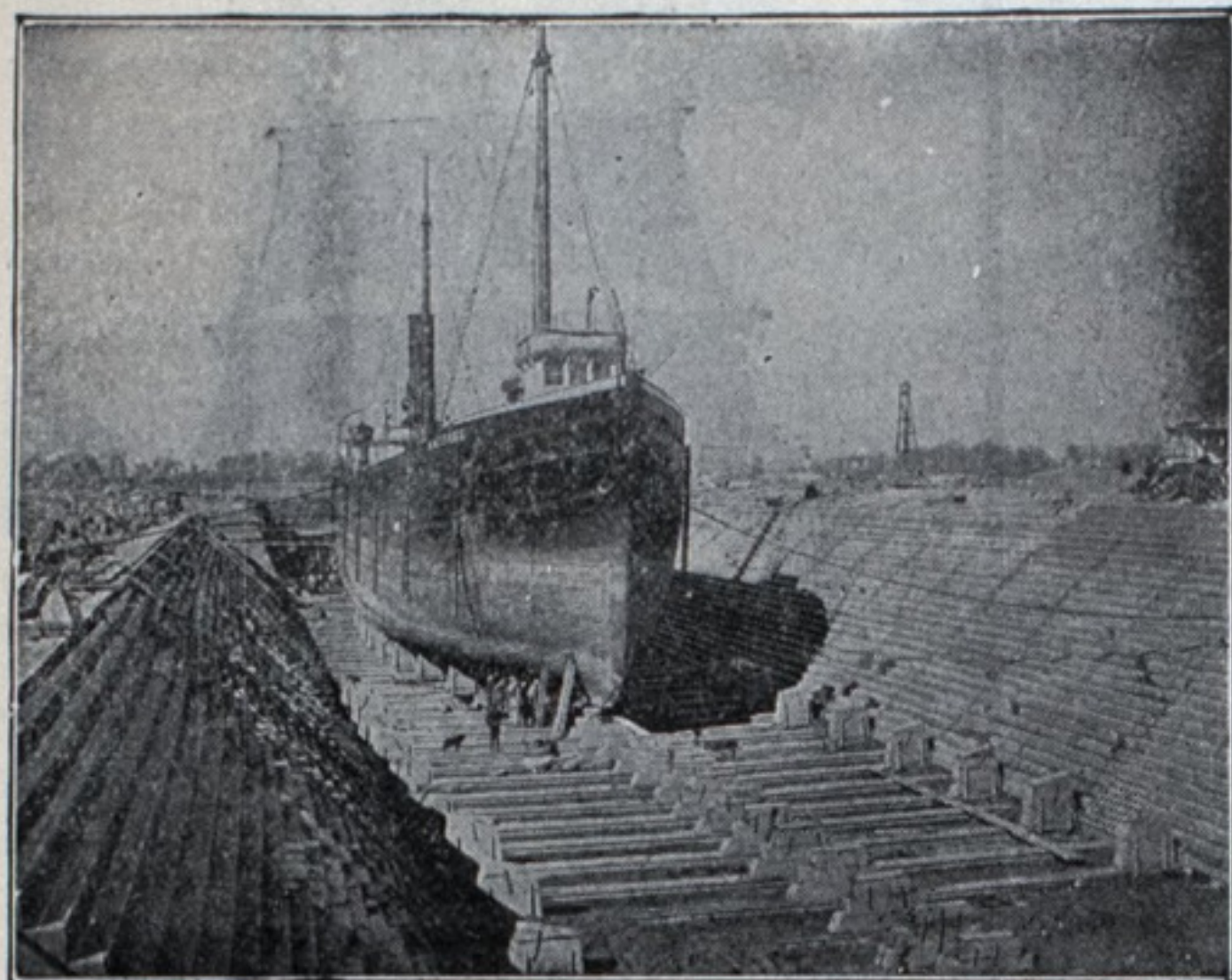
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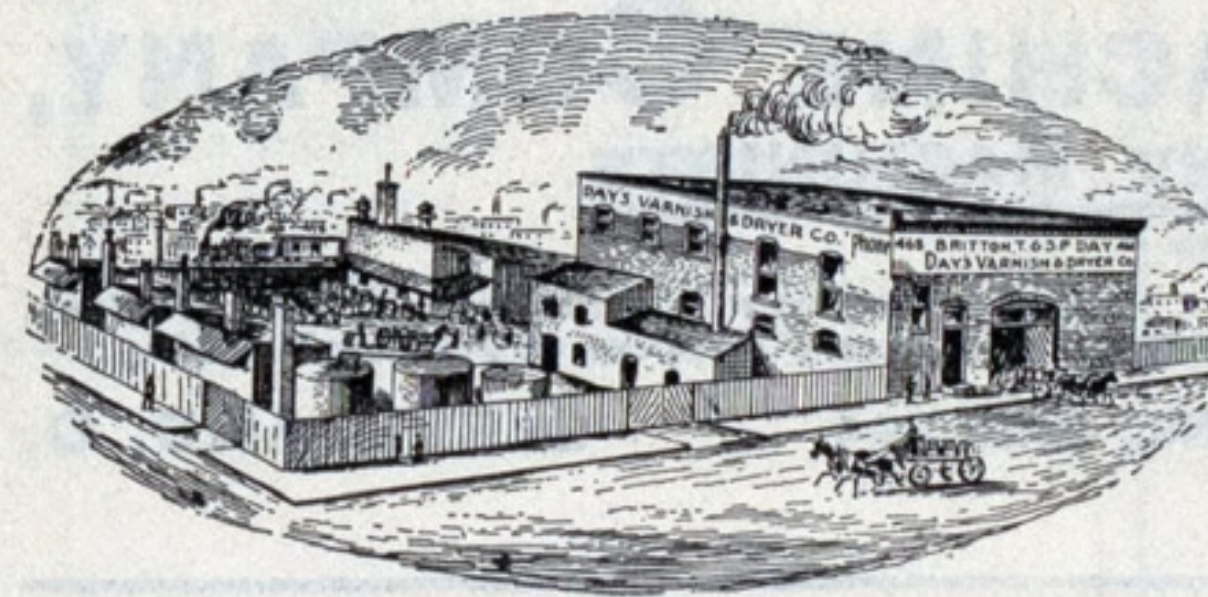
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